Fabric Engine v9.4 Command References

Command Syntax and Usage

9039511-00 Rev AC
July 2026



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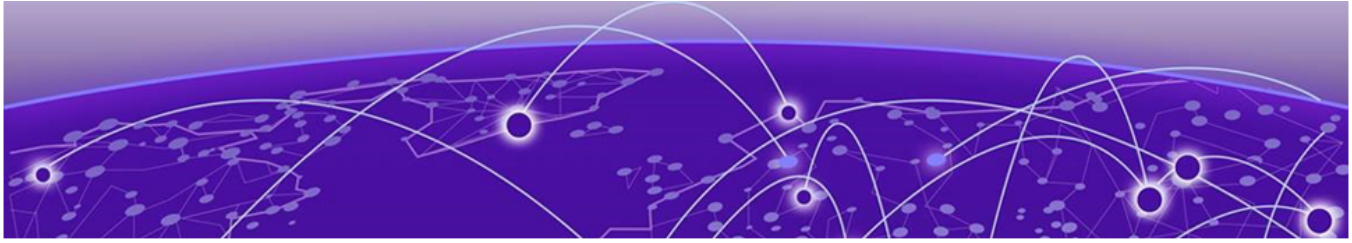

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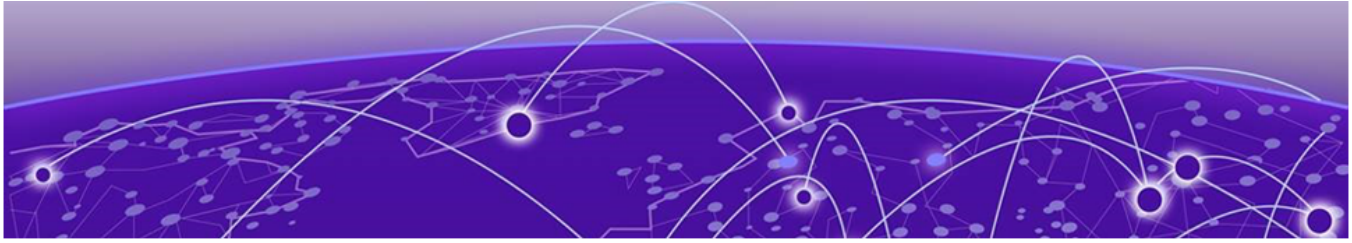
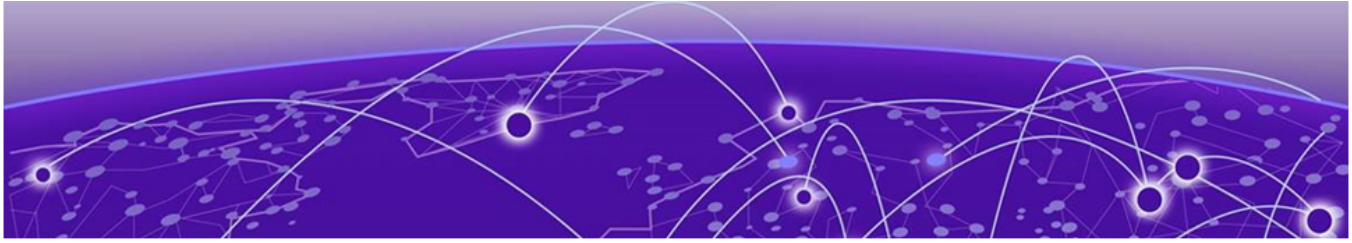


Abstract

This command references for Fabric Engine Release 9.4 by Extreme Networks, Inc., outlines the CLI commands for configuring features on the Fabric Engine platform. It covers a wide range of configurations, including network protocols such as BGP, OSPF, and RIP, as well as DHCP, VLAN, and security settings. Each command's syntax, parameters, and usage are detailed, providing essential information for network administrators to implement and manage network settings using the Fabric Engine CLI. The document caters to both basic and advanced configurations, facilitating various network management tasks.



Preface

Purpose on page 6
Conventions on page 7
Documentation and Training on page 10
Help and Support on page 10
Send Feedback on page 11

Read the following topics to learn about:

- The meanings of text formats used in this document.
- Where you can find additional information and help.
- How to reach us with questions and comments.

Purpose

This document provides information on features in Extreme Networks Fabric Engine™. This release of Fabric Engine runs on the following product families:

- ExtremeSwitching 4220 Series
- ExtremeSwitching 5320 Series
- ExtremeSwitching 5420 Series
- ExtremeSwitching 5520 Series
- ExtremeSwitching 5720 Series
- ExtremeSwitching 7520 Series
- ExtremeSwitching 7720 Series
- ExtremeSwitching 7830 Series

Note

Prior to Fabric Engine 8.6, 5520 Series and 5420 Series platforms ran VOSS. VOSS support ends for these platforms with VOSS 8.5.x.

This guide describes the Command Line Interface (CLI) commands for feature configuration in Fabric Engine. The chapters in this document correspond to a command mode in the CLI. Each chapter is organized alphabetically for those commands in that mode. If a command is available in all modes, like many **show**

commands, it is documented in the mode that requires the lowest level of access privileges.

Note
Usage Guidelines sections attempt to identify when a command is not supported on all platforms. However, exceptions are not noted in every related command topic. For feature support information, always refer to *Fabric Engine and VOSS Feature Matrix*.

Conventions

To help you better understand the information presented in this guide, the following topics describe the formatting conventions used for notes, text, and other elements.

Text Conventions

The following tables list text conventions that can be used throughout this document.

Table 1: Notes and warnings

Icon	Notice type	Alerts you to...
	Tip	Helpful tips and notices for using the product.
	Note	Useful information or instructions.
	Important	Important features or instructions.

Table 1: Notes and warnings (continued)

Icon	Notice type	Alerts you to...
	Caution	Risk of personal injury, system damage, or loss of data.
	Warning	Risk of severe personal injury.

Table 2: Text conventions

Convention	Description
The words *enter* and *type*	When you see the word *enter* in this guide, you must type something, and then press the Return or Enter key. Do not press the Return or Enter key when an instruction simply says *type*.
Key names	Key names are written in boldface, for example **Ctrl** or **Esc**. If you must press two or more keys simultaneously, the key names are linked with a plus sign (+). Example: Press **Ctrl**+**Alt**+**Del**
NEW!	New information. In a PDF, this is searchable text.

Table 3: Command syntax

Convention	Description
Angle brackets (< >)	Angle brackets (< >) indicate that you choose the text to enter based on the description inside the brackets. Do not type the brackets when you enter the command. If the command syntax is `cfm maintenance-domain maintenance-level <0-7>` , you can enter `cfm maintenance-domain maintenance-level 4`.
Bold text	Bold text indicates the GUI object name you must act upon. Examples: • Select **OK**. • On the **Tools** menu, choose **Options**.

Table 3: Command syntax (continued)

Convention	Description
Braces ({ })	Braces ({ }) indicate required elements in syntax descriptions. Do not type the braces when you enter the command. For example, if the command syntax is `ip address {A.B.C.D}`, you must enter the IP address in dotted, decimal notation.
Brackets ([ ])	Brackets ([ ]) indicate optional elements in syntax descriptions. Do not type the brackets when you enter the command. For example, if the command syntax is `show clock [detail]`, you can enter either `show clock` or `show clock detail`.
Ellipses (...)	An ellipsis (...) indicates that you repeat the last element of the command as needed. For example, if the command syntax is `ethernet/2/1 [ <parameter> <value> ]...`, you enter `ethernet/2/1` and as many parameter-value pairs as you need.
Italic Text	Italics emphasize a point or denote new terms at the place where they are defined in the text. Italics are also used when referring to publication titles that are not active links.
`Plain Courier Text`	Plain Courier text indicates command names, options, and text that you must enter. Plain Courier text also indicates command syntax and system output, for example, prompts and system messages. Examples: • `show ip route` • `Error: Invalid command syntax [Failed][2013-03-22 13:37:03.303 -04:00]`

Table 3: Command syntax (continued)

Convention	Description
Separator (>)	A greater than sign (>) shows separation in menu paths. For example, in the Navigation pane, expand **Configuration** > **Edit**.
Vertical Line (|)	A vertical line (|) separates choices for command keywords and arguments. Enter only one choice. Do not type the vertical line when you enter the command. For example, if the command syntax is `access-policy by-mac action { allow | deny }`, you enter either `access-policy by-mac action allow` or `access-policy by-mac action deny`, but not both.

Documentation and Training

Find Extreme Networks product information at the following locations:

Current Product Documentation

Release Notes

Hardware and Software Compatibility for Extreme Networks products

Extreme Optics Compatibility

Other Resources such as articles, white papers, and case studies

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Help and Support

If you require assistance, contact Extreme Networks using one of the following methods:

Extreme Portal

Search the GTAC (Global Technical Assistance Center) knowledge base; manage support cases and service contracts; download software; and obtain product licensing, training, and certifications.

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A forum for Extreme Networks customers to connect with one another, answer questions, and share ideas and feedback. This community is monitored by Extreme Networks employees, but is not intended to replace specific guidance from GTAC.

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Before contacting Extreme Networks for technical support, have the following information ready:

- Your Extreme Networks service contract number, or serial numbers for all involved Extreme Networks products
- A description of the failure
- A description of any actions already taken to resolve the problem
- A description of your network environment (such as layout, cable type, other relevant environmental information)
- Network load at the time of trouble (if known)
- The device history (for example, if you have returned the device before, or if this is a recurring problem)
- Any related RMA (Return Material Authorization) numbers

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1. Go to The Hub.
2. In the list of categories, expand the **Product Announcements** list.
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- Content errors, or confusing or conflicting information.
- Improvements that would help you find relevant information.
- Broken links or usability issues.

To send feedback, email us at Product-Documentation@extremenetworks.com.

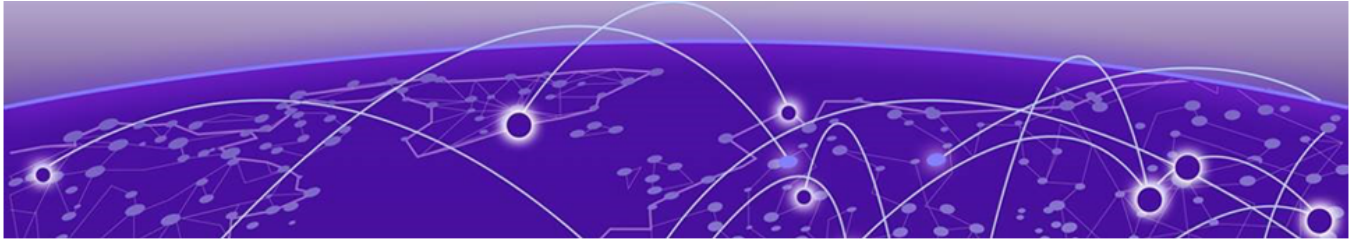
Provide as much detail as possible including the publication title, topic heading, and page number (if applicable), along with your comments and suggestions for improvement.

Document Revision Changes

The following table identifies changes between revisions of the same release document.

Table 4: 9.4 CLI Commands Reference revision changes

Revision	Change
AA	Initial revision for new release, see New in this Document on page 14
AB	Updated autotopology on page 361 and boot config flags factorydefaults zero-touch-config-only on page 387
AC	Added Usage Guidelines to interface Loopback on page 460



New in this Document

Notice about Feature Support on page 17

The following sections detail what is new in this document.

New Commands

The following commands are newly added to this document:

- 5720 Series:
  - sys fan set-min-speed <20-100> on page 704
- Auto-sense Link Debounce:
  - auto-sense link-debounce {auto <0-300000> | off | on <0-300000>} on page 374
  - show auto-sense link-debounce on page 1243
- Auto-sense SD-WAN Enhancements:
  - show ip bgp conf on page 1387
- DHCP Server Option 150:
  - tftp server-list {A.B.C.D} on page 82
  - ip dhcp-server tftp-server-list {A.B.C.D} on page 476
- Dynamic DNS Resolution Testing
  - service-probe query dns on page 648
- Guest I-SID Control for Auto-sense Ports:
  - auto-sense guest-isid enable on page 370
  - show auto-sense guest-isid on page 1241
- IPFIX:
  - ip ipfix nni enable on page 495
  - ip ipfix port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} enable on page 496
- LLDP:
  - lldp cdp dual-mode-enable on page 285
- Log file transfer:
  - logging transferfile <1-10> scp username WORD<0-50> on page 571
- Multiple Spanning Tree Protocol Restricted Role and Restricted TCN:
  - spanning-tree mstp restricted-role enable on page 327
  - spanning-tree mstp restricted-tcn enable on page 327

- OpenAPI
  - openapi local-mgmt minimum-tls on page 21
  - openapi local-mgmt ttl on page 22
- PTPv2 with VLAN-based Transparent Clock:
  - ptp enable on page 615
  - show ptp on page 1723
- Segmented VRF:
  - segmented on page 2067
- TTL Handling for Bridged Traffic with Routed SPB IP Multicast
  - spbm <1-100> routed-multicast-ttl1-bridging enable on page 803

Updated Commands

The following commands are updated in this document:

Table 5: Existing Command Updates

Command	Update
autotopology on page 361	Updated Default
boot config flags factorydefaults zero-touch-config-only on page 387	Updated description
clock time-zone on page 415	Updated command description
ip address (loopback) on page 818	Updated for Segmented VRF
ip bgp neighbor on page 1963	Updated for Segmented VRF
ip ipfix enable on page 494	Updated Usage Guidelines
ip ipfix aging-interval on page 492	Added new parameters for 7830 Series
ip route (globally) on page 517	Added new parameter
ip route (for a VRF) on page 2015	Added new parameter
ipv6 route on page 555	Added new parameter
ipv6 route (for VRF) on page 2048	Added new parameters
ip vrf on page 529	Added Usage Guidelines
i-sid (for a VRF) on page 1951	Updated for
link-debounce on page 284	Updated Usage Guidelines
monitor-by-isid on page 587	Updated Usage Guidelines
mirror-by-port on page 582	Updated Usage Guidelines
router isis remote on page 642	Updated Usage Guidelines
router isis remote enable on page 642	Updated Usage Guidelines
router vrf on page 645	Updated for Segmented VRF
show application openapi on page 1228	Updated command output
show application openapi log on page 1229	Added new parameter

Table 5: Existing Command Updates (continued)

Command	Update
show auto-sense on page 1234	Added new parameter
show interfaces loopback on page 1024	Updated for Segmented VRF
show io on page 1357	Updated for EEPROM data
show ip address on page 1367	Updated for Segmented VRF
show ip arp on page 1371	Updated for Segmented VRF
show ip dhcp-relay counters on page 1397	Updated for Segmented VRF
show ip dhcp-relay fwd-path on page 1400	Updated for Segmented VRF
show ip dhcp-server on page 1404	Updated for Option 150
show ip dhcp-server subnet on page 1410	Updated for Option 150
show ip igmp interface on page 1066	Added field description and updated command output examples
show ip interface on page 1428	Updated for Segmented VRF
show ip ipvpn on page 1431	Updated for Segmented VRF
show ip ospf interface on page 1449	Updated for Segmented VRF
show ip route on page 1477	Updated for Segmented VRF
show ip vrf on page 1498	Updated for Segmented VRF
show isis spbm on page 1644	Updated command output
show isis spbm multicast on page 1657	Added new field description and command output example
show khi resource-scaling on page 1676	Added new parameters and updated command output example
show logging on page 1681	Added example
show service-probe on page 1757	Added new parameters and updated command output example
show spanning-tree mstp config on page 1768	Updated example
slot shutdown on page 651	Added Usage Guidelines
ssh (connection) on page 1827	Added Usage Guidelines
ssh encryption-type on page 688	Updated default information
ssh key-exchange-method on page 691	Updated default information
sys power slot on page 709	Added Usage Guidelines
syslog tls-min-ver on page 718	Updated default information
vrf (for a VLAN) on page 1947	Updated for Segmented VRF
web-server password on page 752	Updated parameter ranges

Removed Commands

The following commands are removed from this document:

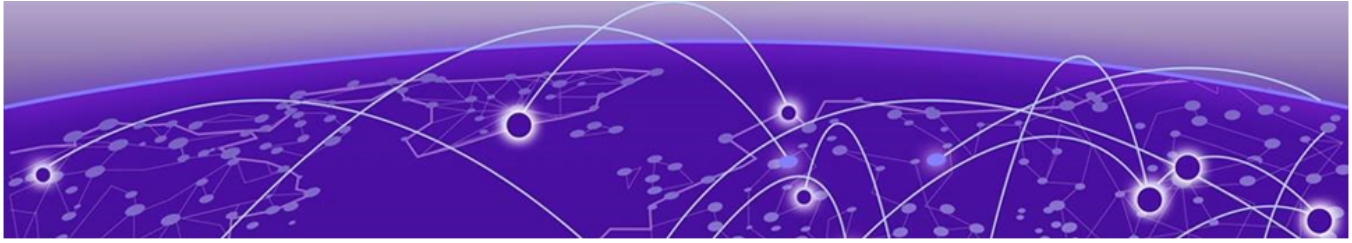
- **clilog maxfilesize <64-256000>**
- **clilog syslog-host enable**
- **show debug spbm fib summary**
- **clear isis lsdb**

Notice about Feature Support

This document includes content for multiple hardware platforms across different software releases. As a result, the content can include features not supported by your hardware in the current software release. If a documented command or parameter does not appear on your hardware, it is not supported. For information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

For information about physical hardware restrictions, see your hardware documentation.

For more information about how individual commands and parameters apply to different products, see the configuration information in the *Fabric Engine User Guide*.



Application Configuration

The following topics document commands available in Application Configuration mode of the command line interface (CLI).

auto-provision server WORD<0-256>

Configures the ExtremeCloud IQ Site Engine server address for ZTP+. After you configure a server, the software immediately attempts ZTP+ onboarding with the configured server.

Syntax

- **auto-provision server WORD<0-256>**
- **no auto-provision server**

Command Parameters

WORD<0-256>

Specifies the IPv4, IPv6, or DNS address of the server.

Default

By default, the ExtremeCloud IQ Site Engine server is discovered by resolving the DNS name *extremecontrol.<domain-name>*.

Command Mode

Application Configuration

iqagent enable

Enables IQAgent.

Syntax

- **iqagent enable**
- **no iqagent enable**

Default

The default is enabled.

Command Mode

Application Configuration

iqagent proxy

Configures the proxy parameters.

Syntax

- **iqagent proxy address WORD<1-255> tcp-port <1-49151>**
- **iqagent proxy username WORD<1-64> password WORD <1-128>**
- **no iqagent proxy address WORD<1-255> tcp-port <1-49151>**
- **no iqagent proxy username**

Command Parameters

address WORD<1-255>

Specifies the proxy IPv4 address or DNS name.

username <WORD 1-64>

Specifies the proxy server user name.

password <WORD 1-128>

Specifies the proxy server password.

tcp-port <1-49151>

Specifies the TCP port to use for IQAgent.

Default

None

Command Mode

Application Configuration

iqagent server

Configures the IPv4 address or DNS name.

Syntax

- **default iqagent server**
- **iqagent server address WORD<1-255>**
- **no iqagent server**

Default

The default server address is hac.extremecloudiq.com.

Command Mode

Application Configuration

openapi local-mgmt enable

Enables local port access for third-party management platforms and modules.

Syntax

- **default openapi local-mgmt**
- **no openapi local-mgmt enable**
- **openapi local-mgmt enable**

Default

The default is disabled.

Command Mode

Application Configuration

openapi local-mgmt auth enable

Configures authentication on a local port to allow a curl request without an authentication token.

Syntax

- **no openapi local-mgmt auth enable**
- **openapi local-mgmt auth enable**

Default

None

Command Mode

Application Configuration

Usage Guidelines

This command is used for debugging purposes. Before you can use this command, enter the **dbg enable** command to enable the debug mode.

openapi local-mgmt minimum-tls

Configures the minimum TLS version.

Syntax

- **openapi local-mgmt minimum-tls {1.2 | 1.3}**
- **default openapi local-mgmt minimum-tls**

Command Parameters

minimum-tls *{1.2 | 1.3}*

Specifies the TLS version.

Default

The default is 1.2.

Command Mode

Application Configuration

Usage Guidelines

You must disable and then reenable the local port state when you change the configuration. For more information, see the *Fabric Engine User Guide*.

openapi local-mgmt tcp-port <1-9443>

Specifies the local port for access by third-party management platforms and modules.

Syntax

- **default openapi local-mgmt**
- **openapi local-mgmt tcp-port <1-9443>**

Default

The default is 9443.

Command Mode

Application Configuration

openapi local-mgmt tls enable

Enables secure communication for local port access.

Syntax

- **default openapi local-mgmt**
- **no openapi local-mgmt tls enable**
- **openapi local-mgmt tls enable**

Default

The default is enabled.

Command Mode

Application Configuration

openapi local-mgmt ttl

Configures the time-to-live (ttl) value for the authentication token.

Syntax

- **openapi local-mgmt ttl <60-86400>**
- **default openapi local-mgmt ttl**

Command Parameters

<60-86400>

Specifies time-to-live value (TTL) in seconds.

Default

The default is 86400 seconds (1 day).

Command Mode

Application Configuration

Usage Guidelines

You must disable and then reenable the local port state when you change the configuration. For more information, see the *Fabric Engine User Guide*.

restconf

Enable or disable the Representational State Transfer Configuration Protocol (RESTCONF) server.

Syntax

- **default restconf <enable | tcp-port | tls | trap-notification>**
- **no restconf <enable | install-cert-file | tls | trap-notification>**
- **restconf <enable | install-cert-file WORD<1-128> | tcp-port <1024-49151> | tls | trap-notication>**

Command Parameters

enable

Enables the RESTCONF server.

install-cert-file WORD <1-128>

Installs the certificate file for RESTCONF.

tcp-port <1024-49151>

Specifies the TCP port to use for the RESTCONF server. The default is 8080.

tls

Enables or disables TLS/SSL for the RESTCONF server. The default is disable.

trap-notification

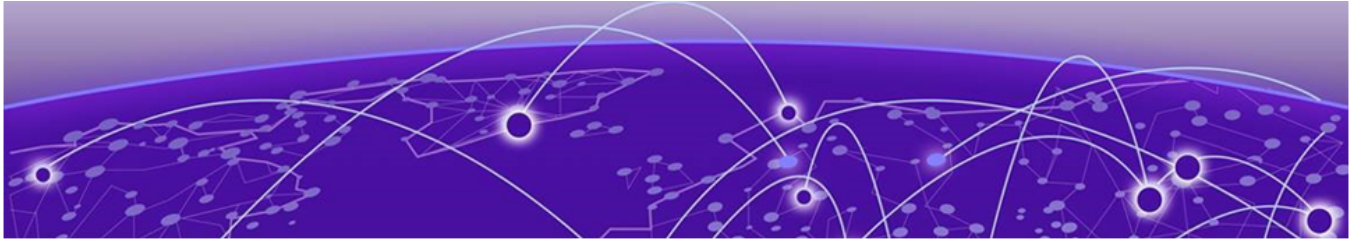
Enables or disables trap notification with the RESTCONF protocol is not available. The default is enable.

Default

The default value is disable.

Command Mode

Application Configuration



BFD Router Configuration

The following topics document commands available in BFD Router Configuration mode of the command line interface (CLI).

traps

Enables traps for Bidirectional Forwarding Detection (BFD).

Syntax

- **default traps**
- **no traps [enable]**
- **traps [enable]**

Command Parameters

enable

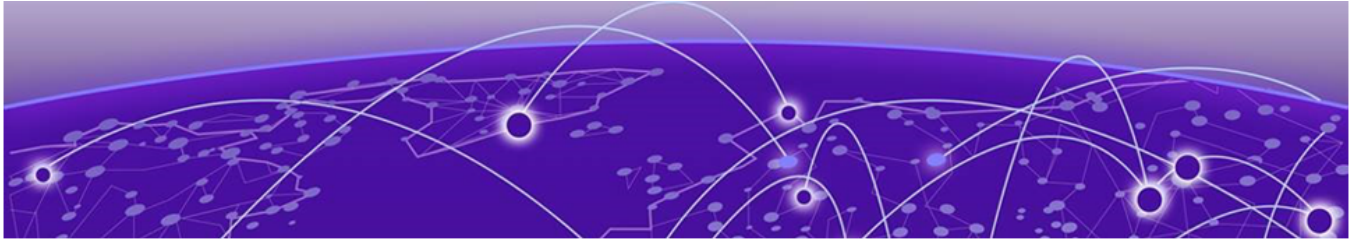
Enables traps.

Default

The default is disabled.

Command Mode

BFD Router Configuration



BGP Router Configuration

The following topics document commands available in BGP Router Configuration mode of the command line interface (CLI).

aggregate-address

Configures an aggregate address in a BGP routing table.

Syntax

- **aggregate-address WORD<1-256>**
- **default aggregate-address WORD<1-256>**
- **no aggregate-address WORD<1-256>**

Command Parameters

WORD <1-256>

Specifies the IPv4 or the IPv6 address and an integer value in the range of 1 to 256.

Default

The default value is disable.

Command Mode

BGP Router Configuration

aggregate-address WORD<1-256> advertise-map

Configures theroute map name for route advertisments.

Syntax

- **default aggregate-address WORD<1-256> advertise-map**
- **aggregate-address WORD<1-256> advertise-map WORD<0-1536>**
- **no aggregate-address WORD<1-256> advertise-map WORD<0-1536>**

Command Parameters

WORD<1-256>

Specifies the IPv4 or the IPv6 address and an integer value in the range of 1 to 256.

WORD<0-1536>

Specifies the name of the route map for route advertisements (any string length between 0 and 64 characters).

Default

None

Command Mode

BGP Router Configuration

aggregate-address WORD<1-256> as-set

Enables autonomous system (AS) information.

Syntax

- **default aggregate-address WORD<1-256> as-set**
- **aggregate-address WORD<1-256> as-set**
- **no aggregate-address WORD<1-256> as-set**

Command Parameters

WORD<1-256>

Specifies the IPv4 or the IPv6 address and an integer value in the range of 1 to 256.

Default

The default is disabled.

Command Mode

BGP Router Configuration

aggregate-address WORD<1-256> attribute-map

Configures the route map name.

Syntax

- **default aggregate-address WORD<1-256> attribute-map WORD<0-1536>**
- **aggregate-address WORD<1-256> attribute-map WORD<0-1536>**
- **no aggregate-address WORD<1-256> attribute-map WORD<0-1536>**

Command Parameters

WORD<1-256>

Specifies the IPv4 or the IPv6 address and an integer value in the range of 1 to 256.

WORD<0-1536>

Specifies the name of the route map (string length between 0 and 64 characters).

Default

None

Command Mode

BGP Router Configuration

aggregate-address WORD<1-256> summary-only

Enables the summarization of routes not included in routing updates. This command creates the aggregate route and suppresses advertisements of more specific routes to all neighbors.

Syntax

- **default aggregate-address WORD<1-256> summary-only**
- **aggregate-address WORD<1-256> summary-only**
- **no aggregate-address WORD<1-256> summary-only**

Command Parameters

WORD<1-256>

Specifies the IPv4 or the IPv6 address and an integer value in the range of 1 to 256.

Default

The default is disabled.

Command Mode

BGP Router Configuration

aggregate-address WORD<1-256> suppress-map

Configures the route map name for the suppressed route list.

Syntax

- **default aggregate-address WORD<1-256> suppress-map WORD<1-1536>**
- **aggregate-address WORD<1-256> suppress-map WORD<1-1536>**
- **no aggregate-address WORD<1-256> suppress-map WORD<1-1536>**

Command Parameters

WORD<1-256>

Specifies the IPv4 or the IPv6 address and an integer value in the range of 1 to 256.

WORD<1-1536>

Specifies the name of the route map (string length between 0 and 64 characters).

Default

None

Command Mode

BGP Router Configuration

auto-peer-restart enable

Enable the process that automatically restarts a connection to a BGP neighbor.

Syntax

- **auto-peer-restart enable**
- **default auto-peer-restart**
- **default auto-peer-restart enable**
- **no auto-peer-restart**
- **no auto-peer-restart enable**

Command Parameters

enable

Enables the process that automatically restarts a connection to a BGP neighbor.

Default

The default value is enable.

Command Mode

BGP Router Configuration

auto-summary

Summarize the networks based on class limits after BGP is enabled. (For example, Class A, B, C networks).

Syntax

- **auto-summary**
- **default auto-summary**
- **no auto-summary**

Default

The default value is enable.

Command Mode

BGP Router Configuration

bgp aggregation

Enables or disables the aggregation feature on the interface.

Syntax

- **bgp aggregation**
- **bgp aggregation enable**
- **default bgp aggregation**
- **default bgp aggregation enable**
- **no bgp aggregation**
- **no bgp aggregation enable**

Command Parameters

enable

Enables the aggregation feature on the interface.

Default

The default value is enable.

Command Mode

BGP Router Configuration

bgp always-compare-med

Enables the comparison of the multiexit discriminator (MED) parameter for paths from neighbors in different autonomous systems. A path with a lower MED is preferred over a path with a higher MED.

Syntax

- **bgp always-compare-med**
- **default bgp always-compare-med**
- **no bgp always-compare-med**

Default

The default value is disable.

Command Mode

BGP Router Configuration

bgp client-to-client reflection

Enables or disables route reflection between two route reflector clients. This option is applicable only if the route reflection value is set to enable.

Syntax

- **bgp client-to-client reflection**
- **default bgp client-to-client reflection**
- **no bgp client-to-client reflection**

Default

The default value is enable.

Command Mode

BGP Router Configuration

bgp cluster-id

Configures a cluster ID. This option applies only if the route reflection value is set to enable, and if multiple route reflectors are in a cluster.

Syntax

- **bgp cluster-id {A.B.C.D}**
- **no bgp cluster-id {A.B.C.D}**

Command Parameters

<A.B.C.D>

Specifies the cluster ID of the reflector router.

Default

None

Command Mode

BGP Router Configuration

bgp confederation

Configures a BGP confederation.

Syntax

- **bgp confederation identifier <0-4294967295>**
- **bgp confederation peers WORD<0-255>**
- **default bgp confederation**
- **default bgp confederation identifier**
- **default bgp confederation peers**
- **no bgp confederation**
- **no bgp confederation identifier**
- **no bgp confederation peers**

Command Parameters

identifier <0-4294967295>

Specifies the confederation identifier. Identifier number 0-65535(2-Byte AS) 0-4294967295(4-Byte AS).

peers WORD <0-255>

Lists adjoining Autonomous Sytems that are part of the confederation in the format (5500,65535,0,10,...,...).

Default

The default value is 0.

Command Mode

BGP Router Configuration

bgp default local-preference

Specifies the default value of the local preference attribute. You cannot change the default value when BGP is enabled.

Syntax

- **bgp default local-preference <0-2147483647>**
- **default bgp default local-preference**
- **no bgp default local-preference**
- **no bgp default local-preference <0-2147483647>**

Command Parameters

<0-2147483647>

Specifies the preference value.

Default

The default value is 100.

Command Mode

BGP Router Configuration

bgp deterministic-med enable

Enables deterministic Multiexit Discriminator (MED).

Syntax

- **bgp deterministic-med enable**
- **default bgp deterministic-med**
- **default bgp deterministic-med enable**
- **no bgp deterministic-med**
- **no bgp deterministic-med enable**

Default

The default value is enable.

Command Mode

BGP Router Configuration

bgp multiple-paths

Configures the maximum number of equal-cost-paths that are available to a BGP router by limiting the number of equal-costpaths that can be stored in the routing table.

Syntax

- **bgp multiple-paths <1-8>**
- **default bgp multiple-paths**

Command Parameters

<1-8>

Specifies the number of equal-cost-paths that are available to a BGP router.

Default

The default value is 1.

Command Mode

BGP Router Configuration

comp-bestpath-med-confed

When enabled, compares multiexit discriminator (MED) attributes within a confederation.

Syntax

- **comp-bestpath-med-confed enable**
- **default comp-bestpath-med-confed**
- **default comp-bestpath-med-confed enable**
- **no comp-bestpath-med-confed**
- **no comp-bestpath-med-confed enable**

Command Parameters

enable

Enables and compares multiexit discriminator attributes within a BGP confederation.

Default

The default value is enable.

Command Mode

BGP Router Configuration

debug-screen

Display debug messages on the console, or saves them in a log file.

Syntax

- **debug-screen { off | on }**
- **default debug-screen**
- **no debug-screen**

Command Parameters

<on|off>

Disables BGP screen logging (off) or enable BGP screen logging (on).

Default

The default value is off.

Command Mode

BGP Router Configuration

default-information

Enable the advertisement of a default route to peers, if it is present in the routing table.

Syntax

- **default default-information originate**
- **default-information originate**
- **no default-information originate**

Command Parameters

originate

Enables the origination default route.

Default

The default value is disable.

Command Mode

BGP Router Configuration

default-metric (for BGP)

Configure a value that is sent to a BGP neighbor to determine the cost of a route a neighbor is using.

Syntax

- **default default-metric**
- **default-metric <-1-2147483647>**
- **no default-metric**
- **no default-metric <-1-2147483647>**

Command Parameters

<-1-2147483647>

Specifies the range of the default metric. A default metric value helps solve the problems associated with redistributing routes that have incompatible metrics.

Default

The default value is -1.

Command Mode

BGP Router Configuration

flap-dampening

Enable route suppression for routes that flap on and off.

Syntax

- **default flap-dampening**
- **default flap-dampening enable**
- **flap-dampening**
- **flap-dampening enable**
- **no flap-dampening**
- **no flap-dampening enable**

Command Parameters

enable

Enables Border Gateway Protocol (BGP) flap-dampening.

Default

The default value is enable.

Command Mode

BGP Router Configuration

global-debug mask

Display specific debug messages for your global BGP configuration.

Syntax

- **default global-debug mask**
- **global-debug mask WORD<1-100>**
- **no global-debug mask**

Command Parameters

mask WORD <1-100>

Specifies one or more mask choices that you enter, separated by commas with no space between choices. For example,[<mask>,<mask>,<mask>...]. Options include:

- none
- all
- error
- packet
- event
- trace
- warning
- state
- init
- filter
- update

Default

None

Command Mode

BGP Router Configuration

ibgp-report-import-rt

Configure BGP to advertise imported routes to an interior BGP (IBGP) peer. This command Enable or disables the advertisement of nonBGP imported routes to other IBGP neighbors.

Syntax

- **default ibgp-report-import-rt**
- **default ibgp-report-import-rt enable**
- **ibgp-report-import-rt enable**
- **no ibgp-report-import-rt**
- **no ibgp-report-import-rt enable**

Command Parameters

enable

Enables advertisement of non BGP imported routes to other IBGP neighbors.

Default

The default value is enable.

Command Mode

BGP Router Configuration

ignore-illegal-rtrid

Overlook an illegal router id after enabling BGP.

Syntax

- **default ignore-illegal-rtrid**
- **default ignore-illegal-rtrid enable**
- **ignore-illegal-rtrid enable**
- **no ignore-illegal-rtrid**
- **no ignore-illegal-rtrid enable**

Command Parameters

enable

Enables or disables the acceptance of a connection from a peer that sends an open message using a router ID of 0 (zero).

Default

The default value is enable.

Command Mode

BGP Router Configuration

neighbor password

Configure a BGP peer or peer group password for Transmission Control Protocol (TCP) MD5 authentication between two peers.

Syntax

- **default neighbor password <nbr_ipaddr|peer-group-name> WORD<0-1536>**
- **neighbor password <nbr_ipaddr|peer-group-name> WORD<0-1536>**
- **no neighbor password <nbr_ipaddr|peer-group-name> WORD<0-1536>**

Command Parameters

<nbr_ipaddr|peer-group-name> WORD <0–1536>

Specifies a password for TCP MD5 authentication between two peers. WORD <0–1536> is an alphanumeric string length from 0 to 1536 characters.

To disable this option, use no operator with the command.

To configure this option to the default value, use default operator with the command.

Default

None

Command Mode

BGP Router Configuration

neighbor WORD<0-1536>

Create a peer or peer group.

Syntax

- **default neighbor WORD<0-1536>**
- **neighbor WORD<0-1536>**
- **no neighbor WORD<0-1536>**

Command Parameters

WORD<0-1536>

Specifies the peer IP address or the peer group name.

Default

None

Command Mode

BGP Router Configuration

neighbor WORD<0-1536> address-family

Enables BGP address families for IPv6 or IPv4 (BGP) and L3 VPN (MP-BGP) support.

Syntax

- **default neighbor WORD<0-1536> address-family ipv6**
- **default neighbor WORD<0-1536> address-family vpnv4**
- **neighbor WORD<0-1536> address-family ipv6**
- **neighbor WORD<0-1536> address-family vpnv4**
- **no neighbor WORD<0-1536> address-family ipv6**
- **no neighbor WORD<0-1536> address-family vpnv4**

Default

None

Command Mode

BGP Router Configuration

neighbor WORD<0-1536> advertisement-interval <5-120>

Specifies the time interval (in seconds) that transpires between each transmission of an advertisement from a BGP neighbor.

Syntax

- **default neighbor WORD<0-1536> advertisement-interval**
- **neighbor WORD<0-1536> advertisement-interval <5-120>**

Default

The default value is 5 seconds.

Command Mode

BGP Router Configuration

neighbor WORD<0-1536> default-ipv6-originate

Enables IPv6 BGP neighbor default originate.

Syntax

- **default neighbor WORD<0-1536> default-ipv6-originate**
- **neighbor WORD<0-1536> default-ipv6-originate**
- **no neighbor WORD<0-1536> default-ipv6-originate**

Default

The default value is disable.

Command Mode

BGP Router Configuration

neighbor WORD<0-1536> default-originate

Enables the switch to send a default route advertisement to the specified neighbor. A default route does not have to be in the routing table. Do not use this command if you globally enable default-information originate.

Syntax

- **default neighbor WORD<0-1536> default-originate**
- **neighbor WORD<0-1536> default-originate**
- **no neighbor WORD<0-1536> default-originate**

Default

The default value is disable.

Command Mode

BGP Router Configuration

neighbor WORD<0-1536> ebgp-multihop

Enables a connection to a Border Gateway Protocol (BGP) peer that is more than one hop away from the local router.

Syntax

- **default neighbor WORD<0-1536> ebgp-multihop**
- **neighbor WORD<0-1536> ebgp-multihop**
- **no neighbor WORD<0-1536> ebgp-multihop**

Default

The default value is disable.

Command Mode

BGP Router Configuration

neighbor WORD<0-1536> enable

Enables the Border Gateway Protocol (BGP) neighbor.

Syntax

- **default neighbor WORD<0-1536> enable**
- **neighbor WORD<0-1536> enable**
- **no neighbor WORD<0-1536> enable**

Default

The default value is disable.

Command Mode

BGP Router Configuration

neighbor word<0-1536> fall-over bfd

Enables Bidirectional Forwarding Detection (BFD) for BGP.

Syntax

- **neighbor word<0-1536> fall-over bfd**
- **no neighbor word<0-1536> fall-over bfd**

Command Parameters

word<0-1536>

Specifies the peer IP address or the peer group name.

Default

The default is disable.

Command Mode

BGP Router Configuration

neighbor WORD<0-1536> in-route-map WORD<0-256>

Applies a route policy rule to all incoming routes that are learned from, or sent to, the local BGP router peers, or peer groups. The local BGP router is the BGP router that allows or disallows routes and sets attributes in incoming or outgoing updates.

Syntax

- **default neighbor WORD<0-1536> in-route-map**
- **neighbor WORD<0-1536> in-route-map WORD<0-256>**
- **no neighbor WORD<0-1536> in-route-map**

Command Parameters

WORD<0-256>

Specifies an alphanumeric string length (0 to 256 characters) that indicates the name of the route map or policy.

Default

None

Command Mode

BGP Router Configuration

neighbor WORD<0-1536> ipv6-in-route-map WORD<0-256>

Creates IPv6 in route map.

Syntax

- **default neighbor WORD<0-1536> ipv6-in-route-map**
- **neighbor WORD<0-1536> ipv6-in-route-map WORD<0-256>**
- **no neighbor WORD<0-1536> ipv6-in-route-map**

Command Parameters

WORD <0-256>

Specifies the route map or policy name in an alphanumeric string.

Default

None

Command Mode

BGP Router Configuration

neighbor WORD<0-1536> ipv6-out-route-map WORD<0-256>

Applies a route policy to all outgoing routes.

Syntax

- **default neighbor WORD<0-1536> ipv6-out-route-map**
- **neighbor WORD<0-1536> ipv6-out-route-map WORD<0-256>**
- **no neighbor WORD<0-1536> ipv6-out-route-map**

Command Parameters

WORD<0-1536>

Specifies the peer IP address or the peer group name.

WORD<0-256>

Specifies a name for the route map or policy in an alphanumeric string.

Default

None

Command Mode

BGP Router Configuration

neighbor WORD<0-1536> max-prefix <0-2147483647>

Sets a limit on the number of routes that can be accepted from a neighbor.

Syntax

- **default neighbor WORD<0-1536> max-prefix**
- **neighbor WORD<0-1536> max-prefix <0-2147483647>**

Command Parameters

<0-2147483647>

Sets a limit on the number of routes that can be accepted from a neighbor. A value of 0 (zero) indicates that there is no limit to the number of routes that can be accepted.

Default

The default value is 12000 routes

Command Mode

BGP Router Configuration

neighbor WORD<0-1536> MD5-authentication enable

Enables TCP MD5 authentication between two peers.

Syntax

- **default neighbor WORD<0-1536> MD5-authentication enable**
- **neighbor WORD<0-1536> MD5-authentication enable**
- **no neighbor WORD<0-1536> MD5-authentication enable**

Default

The default value is disable.

Command Mode

BGP Router Configuration

neighbor WORD<0-1536> neighbor-debug-mask WORD<1-100>

Displays specified debug information for a BGP peer.

Syntax

- **default neighbor WORD<0-1536> neighbor-debug-mask**
- **neighbor WORD<0-1536> neighbor-debug-mask WORD<1-100>**
- **no neighbor WORD<0-1536> neighbor-debug-mask**

Command Parameters

WORD<1-100>

WORD<1-100> is a list of mask choices separated by commas with no space between choices. For example, {<mask>,<mask>,<mask>...}. Mask choices are

- none - disables all debug messages
- all - enables all debug messages
- error -enables display of debug error messages
- packet - enables display of debug packet messages
- event - enables display of debug event messages
- trace - enables display of debug trace messages
- warning - enables display of debug warning messages
- state - enables display of debug state transition messages
- init - enables display of debug initialization messages

- filter - enables display of debug messages related to filtering
- update - enables display of debug messages related to sending and receiving updates

Default

The default value is none.

Command Mode

BGP Router Configuration

neighbor WORD<0-1536> next-hop-self

When enabled, specifies that the next-hop attribute in an IBGP update is the address of the local router or the router that is generating the IBGP update. You can only configure the next-hop parameter if the neighbor is disabled.

Syntax

- **default neighbor WORD<0-1536> next-hop-self**
- **neighbor WORD<0-1536> next-hop-self**
- **no neighbor WORD<0-1536> next-hop-self**

Default

The default value is disable.

Command Mode

BGP Router Configuration

neighbor WORD<0-1536> out-route-map WORD<0-256>

Applies a route policy rule to all outgoing routes that are learned from, or sent to, the local peers or peer groups, of the BGP router. The local BGP router is the BGP router that allows or disallows routes, and sets attributes in incoming or outgoing updates.

Syntax

- **default neighbor WORD<0-1536> out-route-map**
- **neighbor WORD<0-1536> out-route-map WORD<0-256>**
- **no neighbor WORD<0-1536> out-route-map**

Command Parameters

WORD<0-1536>

Specifies the neighbor IP address {a.b.c.d}, IPv6 address, or neighbor group name.

WORD<0-256>

WORD<0-256> name is an alphanumeric string length (0 to 256 characters) that indicates the name of the route map or policy.

Default

None

Command Mode

BGP Router Configuration

neighbor WORD<0-1536> peer-group WORD<0-1536>

Adds a Border Gateway Protocol (BGP) peer to the specified subscriber group. You must create the specified subscriber group before you issue this command.

Syntax

- **neighbor WORD<0-1536> peer-group WORD<0-1536>**
- **no neighbor WORD<0-1536> peer-group**

Command Parameters

WORD<0-1536>

Specifies the subscriber group. You must create the specified subscriber group before you issue this command.

Default

None

Command Mode

BGP Router Configuration

neighbor WORD<0-1536> remote-as WORD<0-11>

Configures the remote AS number of a Border Gateway Protocol (BGP) peer or a peer-group. You cannot configure this option when the admin-state is enable.

Syntax

- **default neighbor WORD<0-1536> remote-as**
- **neighbor WORD<0-1536> remote-as WORD<0-11>**
- **no neighbor WORD<0-1536> remote-as**

Command Parameters

WORD<0-11>

Specifies the remote AS number of a peer or a peer-group.

Default

None

Command Mode

BGP Router Configuration

neighbor WORD<0-1536> remove-private-as enable

When enabled, strips private AS numbers when an update is sent. This feature is especially useful within a confederation.

Syntax

- **default neighbor WORD<0-1536> remove-private-as enable**
- **neighbor WORD<0-1536> remove-private-as enable**
- **no neighbor WORD<0-1536> remove-private-as enable**

Default

The default value is enable.

Command Mode

BGP Router Configuration

neighbor WORD<0-1536> retry-interval <1-65535>

Configures the time interval (in seconds) for the ConnectRetry Timer.

Syntax

- **default neighbor WORD<0-1536> retry-interval**
- **neighbor WORD<0-1536> retry-interval <1-65535>**

Default

The default value is 120 seconds.

Command Mode

BGP Router Configuration

neighbor WORD<0-1536> route-reflector-client

Configures the specified neighbor or group of neighbors as its route reflector client. All neighbors that are configured become members of the client group and the remaining IBGP peers become members of the nonclient group for the local route reflector.

Syntax

- **neighbor WORD<0-1536> route-reflector-client**
- **no neighbor WORD<0-1536> route-reflector-client**

Default

The default value is disable.

Command Mode

BGP Router Configuration

neighbor WORD<0-1536> route-refresh

Enables IP VPN Route Refresh for the Border Gateway Protocol (BGP) peer. If enabled, a route refresh request received by a BGP speaker causes the speaker to resend all route updates it contains in its database that are eligible for the peer that issues the request.

Syntax

- **default neighbor WORD<0-1536> route-refresh**
- **neighbor WORD<0-1536> route-refresh**
- **no neighbor WORD<0-1536> route-refresh**

Default

The default value is disable

Command Mode

BGP Router Configuration

neighbor WORD<0-1536> send-community

Enables the switch to send the update message community attribute to the specified peer.

Syntax

- **default neighbor WORD<0-1536> send-community**
- **neighbor WORD<0-1536> send-community**
- **no neighbor WORD<0-1536> send-community**

Default

The default value is disable.

Command Mode

BGP Router Configuration

neighbor WORD<0-1536> soft-reconfiguration-in enable

When enabled, the router relearns routes from the specified neighbor or group of neighbors without resetting the connection when the policy changes in the inbound direction.

Syntax

- **default neighbor WORD<0-1536> soft-reconfiguration-in enable**
- **neighbor WORD<0-1536> soft-reconfiguration-in enable**
- **no neighbor WORD<0-1536> soft-reconfiguration-in enable**

Default

The default value is disable.

Command Mode

BGP Router Configuration

neighbor WORD<0-1536> timers

Configures timers (in seconds) for the Border Gateway Protocol (BGP) speaker for this peer.

Syntax

- **default neighbor WORD<0-1536> timers**
- **neighbor WORD<0-1536> timers <0-21845> <0-65535>**

Command Parameters

<0-21845>

<0-21845> is the keepalive time. The default is 60.

<0-65535>

<0-65535> is the hold time. The default is 180.

Default

None

Command Mode

BGP Router Configuration

neighbor WORD<0-1536> update-source

Specifies the source IP address when Border Gateway Protocol (BGP) packets are sent to this peer or peer group. You cannot configure this parameter when the admin-state is enable.

Syntax

- **default neighbor WORD<0-1536> update-source**
- **neighbor WORD<0-1536> update-source WORD<1-256>**
- **no neighbor WORD<0-1536> update-source**

Command Parameters

WORD<0-1536>

Specifies the peer IP address or the peer group name.

Default

None

Command Mode

BGP Router Configuration

neighbor WORD<0-1536> weight

Specifies the weight of a Border Gateway Protocol (BGP) peer or peer groups, or the priority of updates that can be received from that BGP peer.

Syntax

- **default neighbor WORD<0-1536> weight**
- **neighbor WORD<0-1536> weight <0-65535>**
- **no neighbor WORD<0-1536> weight**

Command Parameters

<0-65535>

Specifies the weight of a BGP peer or peer groups, or the priority of updates that can be received from that BGP peer.

If you have particular neighbors that you want to prefer for most of your traffic, you can assign a higher weight to all routes learned from that neighbor.

Default

The default value is 0.

Command Mode

BGP Router Configuration

neighbor-debug-all

Display specified debug information for BGP neighbors.

Syntax

- **default neighbor-debug-all**
- **neighbor-debug-all mask WORD<1-100>**
- **no neighbor-debug-all**

Command Parameters

mask <WORD 1-100>

<WORD 1-100> is a list of mask choices separated by commas with no space between choices.

Default

The default value is none.

Command Mode

BGP Router Configuration

network (for BGP)

Specify the Interior Gateway Protocol (IGP) network prefixes for Border Gateway Protocol (BGP) to advertise for redistribution.

Syntax

- **default network WORD<1-256>**
- **network WORD<1-256>**
- **network WORD<1-256> metric <0-65535>**
- **no network WORD<1-256>**

Command Parameters

metric <0-65535>

Specifies the metric to use when the system sends an update for the routes in the network table. The metric configures the MED for the routes advertised to EBGP peers. The range is 0–65535.

WORD <1-256>

Specifies IGP network prefixes for Border Gateway Protocol (BGP) to advertise for redistribution. This command imports routes into BGP. WORD <1-256> is the IPv4 or the IPv6 network address and mask.

Default

None

Command Mode

BGP Router Configuration

no-med-path-is-worst

Enable Border Gateway Protocol (BGP) to treat an update without a multiexit discriminator (MED) attribute as the worst path.

Syntax

- **default no-med-path-is-worst**
- **default no-med-path-is-worst enable**
- **no no-med-path-is-worst**
- **no no-med-path-is-worst enable**
- **no-med-path-is-worst enable**

Command Parameters

enable

Enables Border Gateway Protocol (BGP) to treat an update without a multiexit discriminator (MED) attribute as the worst path.

Default

The default value is enable.

Command Mode

BGP Router Configuration

quick-start

Enable the quick-start flag for exponential backoff.

Syntax

- **default quick-start**
- **default quick-start enable**
- **default quick-start enable**
- **no quick-start**
- **no quick-start enable**
- **quick-start enable**

Command Parameters

enable

Enables the quick-start flag for exponential backoff.

Default

The default value is enable.

Command Mode

BGP Router Configuration

redistribute direct (for BGP)

Redistribute routes learned from directly-connected networks into Border Gateway Protocol (BGP).

Syntax

- **default redistribute direct**
- **default redistribute direct enable**
- **default redistribute direct metric**
- **default redistribute direct metric-type**
- **default redistribute direct route-map**
- **default redistribute direct vrf-src WORD<1-16>**
- **no redistribute direct**
- **no redistribute direct enable**
- **no redistribute direct vrf-src WORD<1-16>**
- **redistribute direct**
- **redistribute direct enable**
- **redistribute direct metric <0-65535>**
- **redistribute direct metric-type live-metric**
- **redistribute direct route-map WORD<0-64>**
- **redistribute direct vrf-src WORD<1-16>**

Command Parameters

enable

Enables the redistribution.

metric <0-65535>

Specifies the value of the metric to be announced in the advertisement. The default is 0.

metric-type live-metric

Configures the route redistribution metric type. The default is disabled.

route-map WORD<0-64>

Configures the route policy to apply to redistributed routes.

vrf-src WORD<1-16>

Specifies the source VRF instance. This parameter is not required for redistribution within the same VRF.

Default

By default, route redistribution is disabled.

Command Mode

BGP Router Configuration

redistribute dvr (for BGP)

Redistribute DvR-learned routes into Border Gateway Protocol (BGP).

Syntax

- **default redistribute dvr**
- **default redistribute dvr enable**
- **default redistribute dvr metric**
- **default redistribute dvr metric-type**
- **default redistribute dvr route-map**
- **default redistribute dvr vrf-src WORD<1-16>**
- **no redistribute dvr**
- **no redistribute dvr enable**
- **no redistribute dvr vrf-src WORD<1-16>**
- **redistribute dvr**
- **redistribute dvr enable**
- **redistribute dvr metric <0-65535>**
- **redistribute dvr metric-type live-metric**
- **redistribute dvr route-map WORD<0-64>**
- **redistribute dvr vrf-src WORD<1-16>**

Command Parameters

enable

Enables the redistribution.

metric <0-65535>

Specifies the value of the metric to be announced in the advertisement. The default is 0.

metric-type live-metric

Configures the route redistribution metric type. The default is disabled.

route-map WORD<0-64>

Configures the route policy to apply to redistributed routes.

vrf-src WORD<1-16>

Specifies the source VRF instance. This parameter is not required for redistribution within the same VRF.

Default

By default, route redistribution is disabled.

Command Mode

BGP Router Configuration

redistribute ipv6-direct (for BGP)

Redistribute routes learned from IPv6 directly-connected networks into Border Gateway Protocol (BGP).

Syntax

- **default redistribute ipv6-direct metric-type**
- **default redistribute ipv6-direct**
- **default redistribute ipv6-direct enable**
- **default redistribute ipv6-direct metric**
- **default redistribute ipv6-direct route-map**
- **no redistribute ipv6-direct**
- **no redistribute ipv6-direct enable**
- **no redistribute ipv6-direct route-map**
- **redistribute ipv6-direct**
- **redistribute ipv6-direct enable**
- **redistribute ipv6-direct metric <0-65535>**
- **redistribute ipv6-direct metric-type live-metric**
- **redistribute ipv6-direct route-map WORD<0-64>**

Command Parameters

enable

Enables the redistribution.

metric <0-65535>

Specifies the value of the metric to be announced in the advertisement. The default is 0.

route-map WORD<0-64>

Configures the route policy to apply to redistributed routes.

Default

By default, route redistribution is disabled.

Command Mode

BGP Router Configuration

redistribute ipv6-isis enable

Enables the BGP route redistribution instance.

Syntax

- **default redistribute ipv6-isis enable**
- **no redistribute ipv6-isis enable**
- **redistribute ipv6-isis enable**

Default

The default is none.

Command Mode

BGP Router Configuration

redistribute ipv6-isis metric

Configure the metric to apply to redistributed routes.

Syntax

- **default redistribute ipv6-isis metric**
- **redistribute ipv6-isis metric <0-65535>**

Command Parameters

<0-65535>

Specifies the BGP metric.

Default

The default value is 0.

Command Mode

BGP Router Configuration

redistribute ipv6-isis route-map

Configure the route policy to apply to redistributed routes.

Syntax

- **default redistribute ipv6-isis route-map**
- **no redistribute ipv6-isis route-map**
- **redistribute ipv6-isis route-map WORD<0-64>**

Command Parameters

WORD<0-64>

Specifies the route policy name.

Default

The default value is 0.

Command Mode

BGP Router Configuration

redistribute ipv6-static (for BGP)

Redistribute IPv6 static routes into Border Gateway Protocol (BGP).

Syntax

- **default redistribute ipv6-static**
- **default redistribute ipv6-static enable**
- **default redistribute ipv6-static metric**
- **default redistribute ipv6-static route-map**
- **no redistribute ipv6-static**
- **no redistribute ipv6-static enable**
- **no redistribute ipv6-static route-map**
- **redistribute ipv6-static**
- **redistribute ipv6-static enable**
- **redistribute ipv6-static metric <0-65535>**
- **redistribute ipv6-static route-map WORD<0-64>**

Command Parameters

enable

Enables the redistribution.

metric <0-65535>

Specifies the value of the metric to be announced in the advertisement. The default is 0.

route-map WORD<0-64>

Configures the route policy to apply to redistributed routes.

Default

By default, route redistribution is disabled.

Command Mode

BGP Router Configuration

redistribute isis (for BGP)

Redistribute learned routes into Border Gateway Protocol (BGP).

Syntax

- **default redistribute isis [enable] [metric] [metric-type] [route-map] [vrf-src WORD<1-16>]**
- **no redistribute isis [auto-filter-tag] [enable]**
- **redistribute isis [auto-filter-tag] [enable] [metric <0-65535>] [metric-type live-metric] [route-map WORD<0-64>] [vrf-src WORD<1-16>]**

Command Parameters

auto-filter-tag

Enables route filtering to ensure tagged IS-IS routes are not redistributed into BGP. The default is disabled.

enable

Enables the redistribution of Intermediate-System-to-Intermediate-System (IS-IS) learned IP routes into BGP.

metric <0-65535>

Specifies the value of the metric to be announced in the advertisement. The default is 1.

metric-type live-metric

Configures the route redistribution metric type. The default is disabled.

route-map WORD<0-64>

Configures the route policy to apply to redistributed routes.

vrf-src WORD<1-16>

Specifies the source VRF instance. This parameter is not required for redistribution within the same VRF.

Default

By default, route redistribution is disabled.

Command Mode

BGP Router Configuration

redistribute ospf (for BGP)

Redistribute OSPF-learned routes into Border Gateway Protocol (BGP).

Syntax

- **default redistribute ospf**
- **default redistribute ospf enable**
- **default redistribute ospf metric**
- **default redistribute ospf metric-type**
- **default redistribute ospf route-map**
- **default redistribute ospf vrf-src WORD<1-16>**
- **no redistribute ospf**
- **no redistribute ospf enable**
- **no redistribute ospf vrf-src WORD<1-16>**
- **redistribute ospf**
- **redistribute ospf enable**
- **redistribute ospf metric <0-65535>**
- **redistribute ospf metric-type live-metric**
- **redistribute ospf route-map WORD<0-64>**
- **redistribute ospf vrf-src WORD<1-16>**

Command Parameters

enable

Enables the redistribution.

metric <0-65535>

Specifies the value of the metric to be announced in the advertisement. The default is 0.

metric-type live-metric

Configures the route redistribution metric type. The default is disabled.

route-map WORD<0-64>

Configures the route policy to apply to redistributed routes.

vrf-src WORD<1-16>

Specifies the source VRF instance. This parameter is not required for redistribution within the same VRF.

Default

By default, route redistribution is disabled.

Command Mode

BGP Router Configuration

redistribute ospfv3 (for BGP)

Redistribute OSPFv3-learned routes into Border Gateway Protocol (BGP).

Syntax

- **default redistribute ospfv3**
- **default redistribute ospfv3 enable**
- **default redistribute ospfv3 metric**
- **default redistribute ospfv3 route-map**
- **no redistribute ospfv3**
- **no redistribute ospfv3 enable**
- **no redistribute ospfv3 route-map**
- **redistribute ospfv3**
- **redistribute ospfv3 enable**
- **redistribute ospfv3 metric <0-65535>**
- **redistribute ospfv3 route-map WORD<0-64>**

Command Parameters

enable

Enables the redistribution.

metric <0-65535>

Specifies the value of the metric to be announced in the advertisement. The default is 0.

route-map WORD<0-64>

Configures the route policy to apply to redistributed routes.

Default

By default, route redistribution is disabled.

Command Mode

BGP Router Configuration

redistribute rip (for BGP)

Redistribute RIP-learned routes into Border Gateway Protocol (BGP).

Syntax

- **default redistribute rip**
- **default redistribute rip enable**
- **default redistribute rip metric**
- **default redistribute rip metric-type**
- **default redistribute rip route-map**
- **default redistribute rip vrf-src WORD<1-16>**
- **no redistribute rip**
- **no redistribute rip enable**
- **no redistribute rip vrf-src WORD<1-16>**
- **redistribute rip**
- **redistribute rip enable**
- **redistribute rip metric <0-65535>**
- **redistribute rip metric-type live-metric**
- **redistribute rip route-map WORD<0-64>**
- **redistribute rip vrf-src WORD<1-16>**

Command Parameters

enable

Enables the redistribution.

metric <0-65535>

Specifies the value of the metric to be announced in the advertisement. The default is 0.

metric-type live-metric

Configures the route redistribution metric type. The default is disabled.

route-map WORD<0-64>

Configures the route policy to apply to redistributed routes.

vrf-src WORD<1-16>

Specifies the source VRF instance. This parameter is not required for redistribution within the same VRF.

Default

By default, route redistribution is disabled.

Command Mode

BGP Router Configuration

redistribute ripng enable

Enable the BGP redistribution RIPng.

Syntax

- **default redistribute ripng enable**
- **no redistribute ripng enable**
- **redistribute ripng enable**

Default

None

Command Mode

BGP Router Configuration

redistribute ripng metric

Configure the metric to apply to redistributed routes.

Syntax

- **default redistribute ripng metric**
- **redistribute ripng metric <0-65535>**

Command Parameters

<0-65535>

Specifies the BGP route distribution metric.

Default

The default value is 0.

Command Mode

BGP Router Configuration

redistribute ripng route-map

Configure the route policy to apply to redistributed routes.

Syntax

- **default redistribute ripng route-map**
- **no redistribute ripng route-map**
- **redistribute ripng route-map WORD<0-64>**

Command Parameters

WORD<0-64>

Specifies the route policy name.

Default

The default value is 0.

Command Mode

BGP Router Configuration

redistribute static (for BGP)

Redistribute static routes into Border Gateway Protocol (BGP).

Syntax

- **default redistribute static**
- **default redistribute static enable**
- **default redistribute static metric**
- **default redistribute static metric-type**
- **default redistribute static route-map**
- **default redistribute static vrf-src WORD<1-16>**
- **no redistribute static**
- **no redistribute static enable**

- **no redistribute static vrf-src WORD<1-16>**
- **redistribute static**
- **redistribute static enable**
- **redistribute static metric <0-65535>**
- **redistribute static metric-type live metric**
- **redistribute static route-map WORD<0-64>**
- **redistribute static vrf-src WORD<1-16>**

Command Parameters

enable

Enables the redistribution.

metric <0-65535>

Specifies the value of the metric to be announced in the advertisement. The default is 0.

metric-type live-metric

Configures the route redistribution metric type. The default is disabled.

route-map WORD<0-64>

Configures the route policy to apply to redistributed routes.

vrf-src WORD<1-16>

Specifies the source VRF instance. This parameter is not required for redistribution within the same VRF.

Default

By default, route redistribution is disabled.

Command Mode

BGP Router Configuration

route-reflector enable

Enable the reflection of routes from IBGP neighbors.

Syntax

- **default route-reflector**
- **default route-reflector enable**
- **no route-reflector**
- **no route-reflector enable**

- **route-reflector**
- **route-reflector enable**

Command Parameters

enable

Enables route-reflector to reflect routers from iBGP neighbors.

Default

The default value is enable.

Command Mode

BGP Router Configuration

route-refresh

Enable or disable IP VPN Route Refresh. If enabled, a route refresh request received by a BGP speaker causes the speaker to resend all route updates it contains in its database that are eligible for the peer that issues the request.

Syntax

- **default route-refresh**
- **no route-refresh**
- **route-refresh**

Default

The default value is disable

Command Mode

BGP Router Configuration

router-id (for BGP)

Specify the BGP router ID in IP address format.

Syntax

- **default router-id**
- **no router-id**
- **router-id {A.B.C.D}**

Command Parameters

<A.B.C.D>

Identifies the router IP address.

Default

None

Command Mode

BGP Router Configuration

synchronization

Enable the router to accept routes from BGP peers without waiting for an update from the IGP.

Syntax

- **default synchronization**
- **no synchronization**
- **synchronization**

Default

The default value is enable.

Command Mode

BGP Router Configuration

traps

Enable BGP traps.

Syntax

- **default traps**
- **default traps enable**
- **no traps**
- **no traps enable**
- **traps enable**

Command Parameters

enable

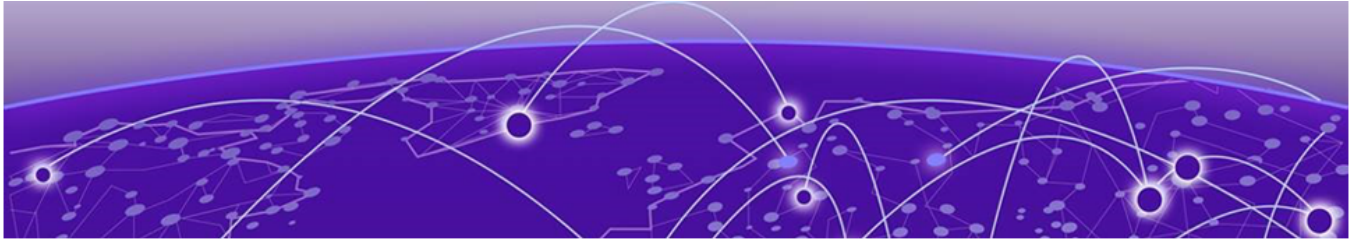
Enables BGP traps.

Default

The default value is disable.

Command Mode

BGP Router Configuration



DHCP-guard Configuration

The following topics document commands available in DHCP-guard Configuration mode of the command line interface (CLI).

match reply prefix-list

Enables verification of the advertised prefixes in DHCP reply messages from the configured authorized prefix list. If not configured, this check will be bypassed. An empty prefix list is treated as a permit.

Syntax

- **default match reply prefix-list**
- **match reply prefix-list WORD<1-64>**
- **no match reply prefix-list**

Command Parameters

WORD<1–64>

Specifies the prefix list name.

Default

None

Command Mode

DHCP-guard Configuration

match server access-list

Enables the verification of sender IPv6 address in inspected messages.

Syntax

- **default match server access-list**
- **match server access-list WORD<1-64>**
- **no match server access-list**

Command Parameters

WORD<1–64>

Specifies the access list name.

Default

None

Command Mode

DHCP-guard Configuration

preference max-limit

Enables verification that the advertised preference is less than the specified limit. If not specified, this check will be bypassed.

Syntax

- **default preference max-limit**
- **preference max-limit <0-255>**

Command Parameters

<0-255>

Specifies the maximum limit value.

Default

None

Command Mode

DHCP-guard Configuration

preference min-limit

Enables verification that the advertised preference is greater than the specified limit. If not specified, this check will be bypassed.

Syntax

- **default preference min-limit**
- **preference min-limit <0-255>**

Command Parameters

<0-255>

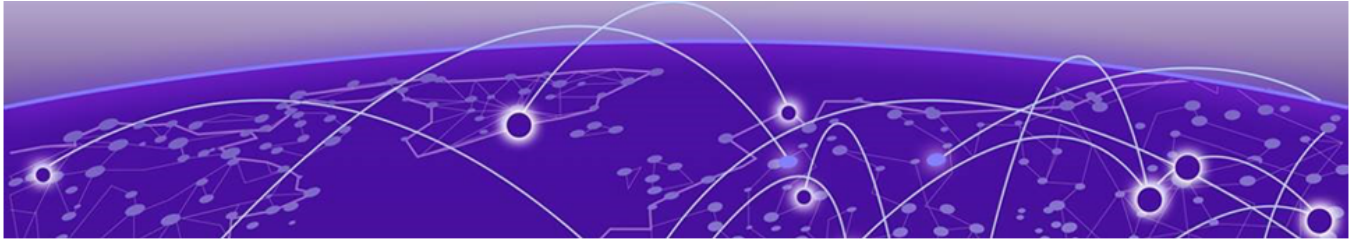
Specifies the minimum limit value.

Default

None

Command Mode

DHCP-guard Configuration



DHCP Server Subnet Configuration

The following topics describe the commands that are available in DHCP Server Subnet Configuration mode of the Command Line Interface (CLI).

custom-option-data <224-254> value WORD<0-128>

Assigns a data value to an existing DHCP Custom Option for use within this DHCP subnet.

Syntax

- **custom-option-data <224-254> value WORD<0-128>**
- **no custom-option-data <224-254>**

Command Parameters

<224-254>

Specifies the DHCP code that identifies this custom option.

value <WORD<0-128>

Assigns a data value to the custom option. The value must use the data type that was assigned in the Custom Option definition (IPv4 address, 32-bit integer, or text string).

Default

None

Command Mode

DHCP Server Subnet Configuration

Usage Guidelines

For information about precedence rules between scopes, see *Fabric Engine User Guide*.

domain-name

Assigns a domain name to the DHCP subnet.

Syntax

- **domain-name WORD<1-128>**
- **no domain-name**

Command Parameters

WORD<1-128>

Specifies the domain name that you want to assign.

Default

None

Command Mode

DHCP Server Subnet Configuration mode

Usage Guidelines

For information about precedence rules between scopes, see *Fabric Engine User Guide*.

domain-name-servers

Assigns DNS servers to this DHCP subnet.

Syntax

- **domain-name-servers {A.B.C.D} [...]**
- **no domain-name-servers [A.B.C.D]**

Command Parameters

{A.B.C.D}

Specifies the IPv4 addresses for the DNS servers that this subnet will use. You can enter up to eight DNS server addresses. Enter each server address on the same command line with a space between each address.

Default

None

Command Mode

DHCP Server Subnet Configuration

Usage Guidelines

For information about precedence rules between scopes, see *Fabric Engine User Guide*.

host 0x00:0x00:0x00:0x00:0x00:0x00

Creates a static host within a DHCP subnet.

Syntax

- **host <0x00:0x00:0x00:0x00:0x00:0x00>**
- **no host <0x00:0x00:0x00:0x00:0x00:0x00>**

Command Parameters

<0x00:0x00:0x00:0x00:0x00:0x00>

Specifies the MAC address of the host.

Default

None

Command Mode

DHCP Server Subnet Configuration

host 0x00:0x00:0x00:0x00:0x00:0x00 hostname

Assigns a hostname to a host.

Syntax

- **host <0x00:0x00:0x00:0x00:0x00:0x00> hostname WORD<0-64>**
- **no host <0x00:0x00:0x00:0x00:0x00:0x00> hostname**

Command Parameters

<0x00:0x00:0x00:0x00:0x00:0x00>

Specifies the MAC address of the host.

WORD<0-64>

Specifies the hostname that you want to assign to the host.

Default

None

Command Mode

DHCP Server Subnet Configuration

host 0x00:0x00:0x00:0x00:0x00:0x00 ip-address

Assigns an IP address to a host.

Syntax

- **host <0x00:0x00:0x00:0x00:0x00:0x00> ip-address {A.B.C.D}**
- **no host <0x00:0x00:0x00:0x00:0x00:0x00> ip-address**

Command Parameters

<0x00:0x00:0x00:0x00:0x00:0x00>

Specifies the MAC address of the host.

{A.B.C.D}

Assigns an IP address to the host. The IP address must be selected from available addresses for the address pool that is configured for the DHCP subnet where the host resides.

Default

None

Command Mode

DHCP Server Subnet Configuration

host 0x00:0x00:0x00:0x00:0x00:0x00 tftp boot-file-name

Specifies the filename of the TFTP boot image that you want this host to use.

Syntax

- **host <0x00:0x00:0x00:0x00:0x00:0x00> tftp boot-file-name WORD<0-128>**
- **no host <0x00:0x00:0x00:0x00:0x00:0x00> tftp boot-file-name**

Command Parameters

<0x00:0x00:0x00:0x00:0x00:0x00>

Specifies the MAC address of the host.

WORD<0-128>

Specifies the file name of the TFTP boot image that you want the host to use.

Default

None

Command Mode

DHCP Server Subnet Configuration

Usage Guidelines

For information about precedence rules between scopes, see *Fabric Engine User Guide*.

host 0x00:0x00:0x00:0x00:0x00:0x00 tftp server-ip

Assigns a TFTP server to this host.

Syntax

- **host <0x00:0x00:0x00:0x00:0x00:0x00> tftp server-ip {A.B.C.D}**
- **no host <0x00:0x00:0x00:0x00:0x00:0x00> tftp server-ip**

Command Parameters

<0x00:0x00:0x00:0x00:0x00:0x00>

Specifies the MAC address of the host.

{A.B.C.D}

Specifies the IP address of the TFTP server that you want to assign to the host.

Default

None

Command Mode

DHCP Server Subnet Configuration

Usage Guidelines

For information about precedence rules between scopes, see *Fabric Engine User Guide*.

host 0x00:0x00:0x00:0x00:0x00:0x00 tftp server-name

Specifies the server name of the TFTP server that you want to assign to this host.

Syntax

- **host <0x00:0x00:0x00:0x00:0x00:0x00> tftp server-name WORD<0-64>**

- **no host <0x00:0x00:0x00:0x00:0x00:0x00> tftp server-name**

Command Parameters

<0x00:0x00:0x00:0x00:0x00:0x00>

Specifies the MAC address of the host.

WORD<0-64>

Specifies the hostname of the TFTP server that you want the host to use.

Default

None

Command Mode

DHCP Server Subnet Configuration

Usage Guidelines

For information about precedence rules between scopes, see *Fabric Engine User Guide*.

lease-time

Assigns a lease expiration timer for this DHCP subnet.

Syntax

- **lease-time <0-300000000>**
- **default lease-time**
- **no lease-time**

Command Parameters

<0-300000000>

Assigns the lease timer expiration timer, in seconds.

Default

The default is 0 (unconfigured).

Command Mode

DHCP Server Subnet Configuration

Usage Guidelines

For information about precedence rules between scopes, see *Fabric Engine User Guide*.

netbios-name-server

Specifies a NetBIOS name server for this DHCP subnet.

Syntax

- **netbios-name-server {A.B.C.D}**
- **no netbios-name-server**

Command Parameters

{A.B.C.D}

Specifies the IPv4 address of the NetBIOS name server.

Default

None

Command Mode

DHCP Server Subnet Configuration

Usage Guidelines

For information about precedence rules between scopes, see *Fabric Engine User Guide*.

netbios-node-type

Specifies the node type of the NetBIOS name server for this DHCP subnet.

Syntax

- **netbios-node-type <0x1|0x2|0x4|0x8>**
- **no netbios-node-type**

Command Parameters

<0x1|0x2|0x4|0x8>

Specifies the node type of the NetBIOS name server. The following list provides definitions of the allowed values:

- `0x1`—B node
- `0x2`—P node

- `0x4`—M node
- `0x8`—H node

Default

The default is 0x0 (unconfigured).

Command Mode

DHCP Server Subnet Configuration

Usage Guidelines

For information about precedence rules between scopes, see *Fabric Engine User Guide*.

ntp-servers

Assigns NTP servers to this DHCP subnet.

Syntax

- **ntp-servers {A.B.C.D} […]**
- **no ntp-servers [A.B.C.D]**

Command Parameters

{A.B.C.D}

Specifies the IPv4 address of the NTP server that you want to assign to this subnet. You can assign up to eight server addresses. Enter each server address on the same command line with a space between each address.

Default

None

Command Mode

DHCP Server Subnet Configuration

Usage Guidelines

For information about precedence rules between scopes, see *Fabric Engine User Guide*.

pool

Assigns a range of IP addresses from which DHCP Server can select addresses to assign to clients within this DHCP subnet.

Syntax

- **pool {A.B.C.D} {A.B.C.D}**
- **no pool**

Command Parameters

{A.B.C.D} {A.B.C.D}

Assigns IPv4 addresses to the start and end of the IP address range. Enter the starting IP address followed by the ending IP address with a space in between. The starting address must be lower than the ending address.

Default

None

Command Mode

DHCP Server Subnet Configuration

router

Assigns the router address for the DHCP subnet.

Syntax

- **router {A.B.C.D} [...]**
- **no routers [A.B.C.D]**

Command Parameters

{A.B.C.D}

Specifies the IPv4 address of the subnet router. You can enter up to eight addresses. Enter each address on the same command line with a character space between each address entry.

Default

None

Command Mode

DHCP Server Subnet Configuration

tftp server-list {A.B.C.D}

Configures a TFTP server list for the subnet.

Syntax

- **tftp server-list {A.B.C.D} [... {A.B.C.D}]**
- **no tftp server-list**

Command Parameters

{A.B.C.D} [... {A.B.C.D}]

Specifies a list of up to eight TFTP server IP addresses for the subnet. This command uses DHCP Server Option 150, which clients, such as IP Phones, can request from a DHCP Server to obtain configuration files or other information from a TFTP server.

Default

None.

Command Mode

DHCP Server Subnet Configuration

Usage Guidelines

For information about precedence rules between scopes, see *Fabric Engine User Guide*.

tftp boot-file-name WORD<0-128>

Specifies the file name of the TFTP boot image that this DHCP subnet uses.

Syntax

- **tftp boot-file-name WORD<0-128>**
- **no tftp boot-file-name**

Command Parameters

WORD<0-128>

Specifies the file name of the TFTP boot image that you want to assign to the subnet.

Default

None

Command Mode

DHCP Server Subnet Configuration

Usage Guidelines

You must assign a TFTP server IP address (Option 66) before you can assign a boot image file.

For information about precedence rules between scopes, see *Fabric Engine User Guide*.

tftp server-ip {A.B.C.D}

Assigns a TFTP server IP address for this DHCP subnet.

Syntax

- **tftp server-ip {A.B.C.D}**
- **no tftp server-ip**

Command Parameters

{A.B.C.D}

Specifies the IPv4 address of the TFTP server that you want to assign to the subnet.

Default

None.

Command Mode

DHCP Server Subnet Configuration

Usage Guidelines

You must configure a TFTP server IP address before you can configure either a TFTP server name or TFTP boot image file name.

This command uses DHCP Server Option 66.

For information about precedence rules between scopes, see *Fabric Engine User Guide*.

tftp server-name WORD<0-64>

Specifies the server name of the TFTP server that this DHCP subnet uses.

Syntax

- **tftp server-name WORD<0-64>**
- **no tftp server-name**

Command Parameters

WORD<0-64>

Specifies the server name for the TFTP server.

Default

None

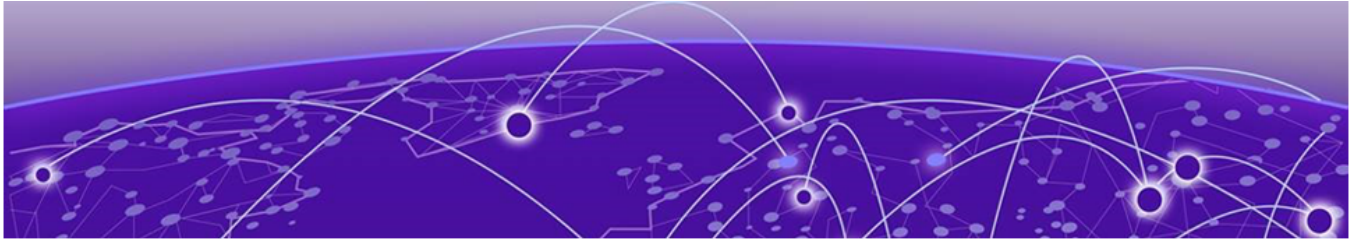
Command Mode

DHCP Server Subnet Configuration mode

Usage Guidelines

You must configure a TFTP server IP address (Option 66) before you can configure a TFTP server name.

For information about precedence rules between scopes, see *Fabric Engine User Guide*.



ELAN I-SID Configuration

The following topics document commands available in ELAN I-SID Configuration mode of the command line interface (CLI).

c-vid (for a port)

Associate (VID, portList) end points to the Switched UNI (S-UNI) service instance identifiers (I-SID).

Syntax

- **c-vid <1-4094> port {slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]}**
- **no c-vid <1-4094> port {slot/port[/sub-port][-slot/port[/sub-port]] [,...][slot/all][all]}**

Command Parameters

<1-4094>

Specifies the customer VLAN ID.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all] [all]}*

Adds ports to ELAN-based service.

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

ELAN I-SID Configuration

c-vid (for an MLT)

Associate (VID, MLT) end points to the Switched UNI (S-UNI) service instance identifiers (I-SID).

Syntax

- **c-vid <1-4094> mlt <1-512>**
- **no c-vid <1-4094> mlt <1-512>**

Command Parameters

<1-4094>

Specifies the customer VLAN ID.

mlt <1-512>

Adds an MLT to ELAN-based service.

Default

None

Command Mode

ELAN I-SID Configuration

untagged-traffic (for a port)

Associate (VID, portList) end points to the Switched UNI (S-UNI) service instance identifiers (I-SID).

Syntax

- **no untagged-traffic port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} [bpdu enable]**
- **untagged-traffic port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} [bpdu enable]**

Command Parameters

bpdu enable

Enables BPDU forwarding.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all] [all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

ELAN I-SID Configuration

untagged-traffic (for an MLT)

Associate (VID, MLT) end points to the Switched UNI (S-UNI) service instance identifiers (I-SID).

Syntax

- **no untagged-traffic mlt <1-512> [bpdu enable]**
- **untagged-traffic mlt <1-512> [bpdu enable]**

Command Parameters

bpdu enable

Enables BPDU forwarding.

mlt <1-512>

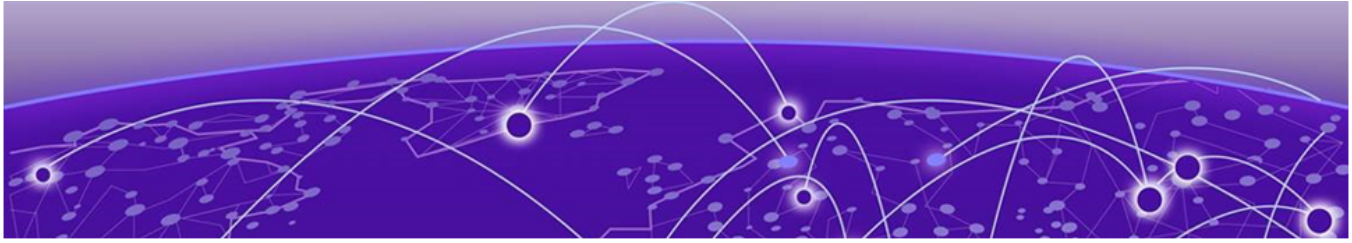
Adds an MLT to ELAN-based service.

Default

None

Command Mode

ELAN I-SID Configuration



ELAN-Transparent Configuration

The following topics document commands available in ELAN-Transparent Configuration mode of the command line interface (CLI).

mlt (T-UNI based)

Add an MLT to ELAN-transparent (Transparent Port UNI) based service instance identifier (I-SID).

Syntax

- **mlt <1-512>**
- **no mlt <1-512>**

Command Parameters

<1-512>

Specifies the MLT ID being added to, or removed from, the Transparent Port UNI based service instance identifier (I-SID).

Default

None

Command Mode

ELAN-Transparent Configuration

port (T-UNI based)

Add ports to ELAN-transparent (Transparent Port UNI) based service instance identifier (I-SID).

Syntax

- **no port <{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}>**
- **port <{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}>**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

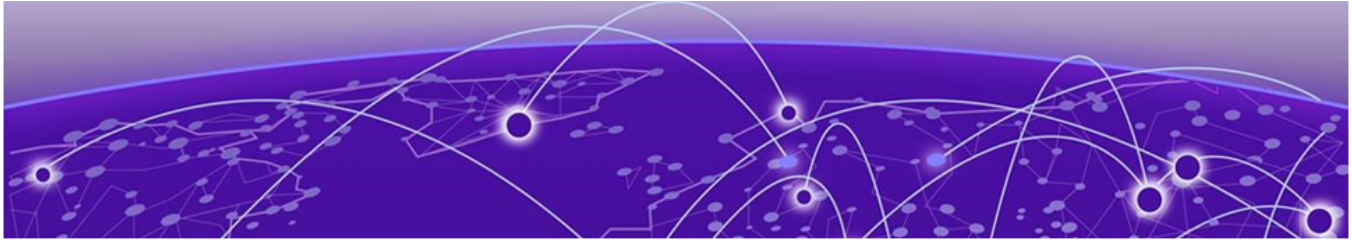
If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

ELAN-Transparent Configuration



Fabric IPsec Gateway Configuration

The following topics document commands available in Fabric IPsec Gateway Configuration mode of the command line interface (CLI).

certificate ca <ca-trustpoint>

Configures certificate authority (CA) trustpoint actions on Fabric IPsec Gateway Virtual Machine (VM).

Syntax

- **certificate ca <ca-trustpoint> {caAuth | clean | enroll <subject-label> | remove <subject-label>}**

Command Parameters

ca <ca-trustpoint>

Specifies the certificate authority (CA) trustpoint.

caAuth

Configures the trustpoint, authenticates the trustpoint CA by getting the certificate of the CA, and stores the CA certificate locally.

clean

Removes all certificates from the CA trustpoint.

enroll <subject-label>

Generates the certificate enrollment request, get the digital certificate, and store it locally, associating with the trustpoint CA.

remove <subject-label>

Releases the locally stored certificate associated with the trustpoint CA post revocation.

Default

None.

Command Mode

Fabric IPsec Gateway Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

certificate generate

Generates a key or certificate signing request (CSR) on Fabric IPsec Gateway Virtual Machine (VM).

Syntax

- **certificate generate {csr <subject-label> | key <type> <size> <key-label>}**

Command Parameters

csr <subject-label>

Generates a CSR and stores it in a file.

key <type> <size> <key-label>

Generates the private and public key pair for the specific cryptography type. By default, the switch generates a 2,048 RSA key when the system starts. Use this parameter to generate a new key.

Default

None.

Command Mode

Fabric IPsec Gateway Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

certificate get

Specifies the location from which to obtain certificates for Fabric IPsec Gateway Virtual Machine (VM).

Syntax

- **certificate get cacert-from <A.B.C.D> <user> <file-path>**
- **certificate get crl-from <A.B.C.D> <user> <file-path> <cacert-filename>**

- **certificate get signedcert-from <A.B.C.D> <user> <file-path> <subject-label>**

Command Parameters

cacert-from <A.B.C.D> <user> <file-path>

Specifies where to obtain the CA certificate. Specify the IP address, user name, and remote file path.

crl-from <A.B.C.D> <user> <file-path> <cacert-filename>

Specifies where to obtain the Certificate Revocation List. Specify the IP address, user name, remote file path, and the CA certificate file to verify the CRL.

signedcert-from <A.B.C.D> <user> <file-path> <subject-label>

Specifies where to obtain the subject certificate. Specify the IP address, user name, remote file path, and subject label.

Default

None.

Command Mode

Fabric IPsec Gateway Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

certificate remove

Removes keys or certificates from Fabric IPsec Gateway Virtual Machine (VM).

Syntax

- **certificate remove {key <key-label> | offline-cacert <filename> | offline-crl <filename> | offline-subject-certs <subject-label>}**

Command Parameters

key <key-label>

Specifies the key name to remove.

offline-cacert <filename>

Specifies the certificate filename to remove.

offline-crl <filename>

Specifies the Certificate Revocation List (CRL) certificate filename to remove.

offline-subject-certs <subject-label>

Specifies the subject label for which to remove signed certificates.

Default

None.

Command Mode

Fabric IPsec Gateway Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

certificate send-csr-to

Configures where to send the certificate signing request (CSR) for signing for Fabric IPsec Gateway Virtual Machine (VM).

Syntax

- **certificate send-csr-to <A.B.C.D> <user> <remote-path> <subject-label>**

Command Parameters

<A.B.C.D>

Specifies the IP address for the certificate authority.

<remote-path>

Specifies the file path on the certificate authority.

<subject-label>

Specifies the subject identity.

<user>

Specifies the user name for the certificate authority.

Default

None.

Command Mode

Fabric IPsec Gateway Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

delete certificate

Deletes the certificate configuration on Fabric IPsec Gateway Virtual Machine (VM).

Syntax

- **delete certificate ca-trustpoint <ca-label>**
- **delete certificate subject <subject-label>**

Command Parameters

ca-trustpoint <ca-label>

Specifies the certificate authority (CA) trustpoint.

subject <subject-label>

Specifies the subject identity.

Default

None.

Command Mode

Fabric IPsec Gateway Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

delete global

Deletes the parameters that you configure globally on the Fabric IPsec Gateway Virtual Machine (VM).

Syntax

- **delete global fe-tunnel-gw-ip**
- **delete global fe-tunnel-src-ip**
- **delete global ipsec-disable**
- **delete global ipsec-tunnel-src-ip**
- **delete global ipsec-tunnel-src-vlan**

- **delete global ipsec-tunnel-src-vlan**
- **delete global lan-intf-gw-ip**
- **delete global lan-intf-ip**
- **delete global lan-intf-vlan**
- **delete global mtu**
- **delete global virtual-reassembly-intf-ip**
- **delete global virtual-reassembly-intf-vlan**
- **delete global wan-intf-gw-ip**

Command Parameters

fe-tunnel-gw-ip

Deletes the global gateway IP address for Fabric Extend (FE) tunnel.

fe-tunnel-src-ip

Deletes the global source IP address for FE tunnel.

ipsec-disable

Deletes the global IPsec configuration.

ipsec-tunnel-src-ip

Deletes the global source IP address and subnet mask for IPsec tunnel.

ipsec-tunnel-src-vlan

Deletes the global source VLAN configuration for IPsec tunnel.

lan-intf-gw-ip

Deletes the global gateway IP address on the Local Area Network (LAN) interface.

lan-intf-ip

Deletes the global IP address and subnet mask on LAN interface.

lan-intf-vlan

Deletes the global VLAN configuration on LAN interface.

mtu

Resets the Maximum Transmission Unit (MTU) value to its default, that is 1950 bytes.

virtual-reassembly-intf-ip

Deletes the global virtual-reassembly interface IP address and subnet mask.

virtual-reassembly-intf-vlan

Deletes the global virtual-reassembly interface VLAN configuration.

wan-intf-gw-ip

Deletes the global gateway IP address on the Wide Area Network (WAN) interface.

Default

None.

Command Mode

Fabric IPsec Gateway Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

delete ip route

Deletes an IP route.

Syntax

- **delete ip route {A.B.C.D/X}**

Command Parameters

{A.B.C.D/X}

Specifies the IP address and mask of the route to delete.

Default

None.

Command Mode

Fabric IPsec Gateway Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

delete ipsec

Deletes the configuration of a specific IPsec tunnel on the Fabric IPsec Gateway Virtual Machine (VM).

Syntax

- **delete ipsec <1-255> admin-state enable**
- **delete ipsec <1-255> auth-key**
- **delete ipsec <1-255> cert-subject**
- **delete ipsec <1-255> egress-shaping-rate**
- **delete ipsec <1-255> encryption-key-length**
- **delete ipsec <1-255> esp**
- **delete ipsec <1-255> fe-tunnel-dest-ip**
- **delete ipsec <1-255> fragment-before-encrypt enable**
- **delete ipsec <1-255> ipsec-dest-ip**
- **delete ipsec <1-255> mtu**
- **delete ipsec <1-255> responder-only**
- **delete ipsec <1-255> tunnel-name**

Command Parameters

admin-state enable

Disables the IPsec status on the specific IPsec tunnel.

auth-key

Deletes the authentication key that you configure on the specific IPsec tunnel.

cert-subject

Removes the certificate subject that you configure on the specific IPsec tunnel.

egress-shaping-rate

Deletes the egress shaping rate for the IPsec tunnel.

encryption-key-length

Resets the encryption key length for the specific IPsec tunnel to its default value, 128 bit.

esp

Removes the ESP cipher suite that you configure on the specific IPsec tunnel.

fe-tunnel-dest-ip

Deletes the destination IP address that you configure on the Fabric Extend (FE) tunnel.

fragment-before-encrypt enable

Disables the fragmentation of packets before IPsec encryption on the tunnel. By default, fragmentation before encryption is disabled.

ipsec-dest-ip

Deletes the destination IP address that you configure on the IPsec tunnel.

mtu

Resets the Maximum Transmission Unit (MTU) value for the specific IPsec tunnel to the MTU value configured globally.

responder-only

Deletes the mode that you configure for the IPsec session in FE tunnel.

tunnel-name

Deletes the name that you configure for the IPsec tunnel.

Default

None.

Command Mode

Fabric IPsec Gateway Configuration

Usage Guidelines

You must disable the IPsec administrative state on the tunnel before you can remove IPsec configuration.

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

delete logical-intf-tunnel

Deletes the configuration of a specific logical interface tunnel on the Fabric IPsec Gateway Virtual Machine (VM).

Syntax

- **delete logical-intf-tunnel <1-255> fe-tunnel-dest-ip**
- **delete logical-intf-tunnel <1-255> mtu**
- **delete logical-intf-tunnel <1-255> egress-shaping-rate**

Command Parameters

fe-tunnel-dest-ip

Deletes the destination IP address that you configure on the logical interface tunnel.

mtu

Resets the Maximum Transmission Unit (MTU) value for the specific logical interface tunnel to the MTU value configured globally.

egress-shaping-rate

Deletes the egress shaping rate on the logical interface tunnel.

Default

None.

Command Mode

Fabric IPsec Gateway Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

exit

Logs out of the Fabric IPsec Gateway Virtual Machine (VM).

Syntax

- **exit**

Default

None.

Command Mode

Fabric IPsec Gateway Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

ftp

Configures an FTP connection to a specific IP Address on Extreme Fabric IPsec Gateway Virtual Machine (VM).

Syntax

- **ftp {A.B.C.D}**

Command Parameters

{A.B.C.D}

Specifies the IP Address to establish the FTP connection with.

Default

None

Command Mode

Fabric IPsec Gateway Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

load

Loads a configuration file to the Fabric IPsec Gateway Virtual Machine (VM).

Syntax

- **load WORD <1-255>**

Command Parameters

WORD <1-255>

Specifies the configuration file name.

Default

None.

Command Mode

Fabric IPsec Gateway Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

ls

Lists the files and directories configured on the Fabric IPsec Gateway Virtual Machine (VM).

Syntax

- **ls**

Default

None

Command Mode

Fabric IPsec Gateway Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

more

Displays the data in a specific file on Fabric IPsec Gateway Virtual Machine (VM).

Syntax

- **more WORD <1-255>**

Command Parameters

WORD <1-255>

Specifies the name of the file

Default

None.

Command Mode

Fabric IPsec Gateway Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

ping

Ping an IP Address on the the Fabric IPsec Gateway Virtual Machine (VM).

Syntax

- **ping {A.B.C.D}**

Command Parameters

{A.B.C.D}

Specifies the IP address.

Default

None.

Command Mode

Fabric IPsec Gateway Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

reboot

Reboots the Fabric IPsec Gateway Virtual Machine (VM).

Syntax

- **reboot**

Default

None.

Command Mode

Fabric IPsec Gateway Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

remove

Deletes a file from the Fabric IPsec Gateway Virtual Machine (VM).

Syntax

- **remove WORD <1-255>**

Command Parameters

WORD <1-255>

Specifies the file name that the system removes from the Fabric IPsec Gateway VM.

Default

None.

Command Mode

Fabric IPsec Gateway Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

reset-config

Resets the current configuration on Fabric IPsec Gateway Virtual Machine (VM).

Syntax

- **reset-config**

Default

None.

Command Mode

Fabric IPsec Gateway Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

save config

Saves the current configuration of the Fabric IPsec Gateway Virtual Machine (VM) to a specific file.

Syntax

- **save config [-y]**
- **save config file WORD <1-255> [-y]**

Command Parameters

file WORD <1-255>

Specifies the file name to save the current configuration of the Fabric IPsec Gateway Virtual Machine (VM).

-y

Forces the switch to overwrite the file without confirmation.

Default

None.

Command Mode

Fabric IPsec Gateway Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

set certificate ca-trustpoint

Configures the certificate authority (CA) on Fabric IPsec Gateway Virtual Machine (VM).

Syntax

- **set certificate ca-trustpoint <ca-label> {ca-url <ca-url> | caname <caname> | get-method <post | get>}**

Command Parameters

<ca-label>

Specifies the name of the CA.

ca-url <ca-url>

Specifies the trusted CA URL.

caname <caname>

Specifies the common name of the CA.

get-method <post | get>

Specifies the HTTP request type. You can use post for EJBCA or get for Win2012 CA. The default value is post.

Default

None.

Command Mode

Fabric IPsec Gateway Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

set certificate subject

Configures the subject identity on Fabric IPsec Gateway Virtual Machine (VM).

Syntax

- **set certificate subject <subject-label> {DN <name> | key-label <key-label>}**

Command Parameters

<subject-label>

Specifies the subject identity. You cannot use the following special characters:

- question mark (?)
- backslash (\)
- ampersand (&)
- less than (<)
- greater than (>)
- pound (#)

DN <name>

Specifies the distinguished name. You can create a comma-separated list.

key-label <key-label>

Specifies the key name of the generated key pair. This parameter is optional. If you do not configure one, the switch generates one the same as the subject-label.

Default

None.

Command Mode

Fabric IPsec Gateway Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

set default-config-file

Loads the default configuration file to the Fabric IPsec Gateway Virtual Machine (VM).

Syntax

- **set default-config-file**

Command Parameters

<default-config-file>

Specifies the name of the deafult configuration file.

Default

None.

Command Mode

Fabric IPsec Gateway Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

set global

Configures the global parameters on the Fabric IPsec Gateway Virtual Machine.

Syntax

- **set global fe-tunnel-gw-ip {A.B.C.D}**
- **set global fe-tunnel-src-ip {A.B.C.D}**
- **set global ipsec-disable**
- **set global ipsec-log-level <-1-5>**
- **set global ipsec-tunnel-src-ip {A.B.C.D/X}**
- **set global ipsec-tunnel-src-vlan** *<2-4059>*
- **set global lan-intf-gw-ip {A.B.C.D}**
- **set global lan-intf-ip {A.B.C.D/X}**
- **set global lan-intf-vlan** *<2-4059>*
- **set global mtu <750-9000>**
- **set global services sshd <disable | enable>**
- **set global virtual-reassembly-intf-ip {A.B.C.D/X}**
- **set global virtual-reassembly-intf-vlan** *<2-4059>*
- **set global wan-intf-gw-ip {A.B.C.D}**

Command Parameters

fe-tunnel-gw-ip {A.B.C.D}

Specifies the gateway IP address for Fabric Extend (FE) tunnel.

fe-tunnel-src-ip {A.B.C.D}

Specifies the source IP address for FE tunnel.

ipsec-disable

Disables IPsec globally on the Fabric IPsec Gateway VM.

ipsec-tunnel-src-ip {A.B.C.D/X}

Specifies the source IP address and subnet mask for IPsec tunnel.

ipsec-tunnel-src-vlan *<2-4059>*

Specifies the VLAN ID in the range of 2 to 4059. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1. By default, the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998.

lan-intf-gw-ip {A.B.C.D}

Specifies the gateway IP address for LAN interface.

lan-intf-ip {A.B.C.D/X}

Specifies the IP address and subnet mask for Local Area Network (LAN) interface.

lan-intf-vlan *<2-4059>*

Specifies the VLAN ID in the range of 2 to 4059. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1. By default, the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998.

mtu <750-9000>

Specifies the Maximum Transmission Unit (MTU) value.

Note
If an IPsec tunnel is not using the fragmentation and reassembly capabilities, the default MTU value is 1950.

services sshd <disable | enable>

Enables or disables SSH access for Fabric IPsec Gateway. By default, SSH access is disabled.

virtual-reassembly-intf-ip {A.B.C.D/X}

Specifies the virtual-reassembly interface IP address and subnet mask on the Fabric IPsec Gateway VM.

Note
You must configure the virtual reassembly interface IP address to use the fragmentation and reassembly service.

virtual-reassembly-intf-vlan *<2-4059>*

Specifies the VLAN ID in the range of 2 to 4059. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1. By default, the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998.

wan-intf-gw-ip {A.B.C.D/X}

Specifies the gateway IP address and subnet mask for Wide Area Network (WAN) interface.

Default

None.

Command Mode

Fabric IPsec Gateway Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

set ip route

Adds an IP route.

Syntax

- **set ip route {A.B.C.D/X} gw {A.B.C.D}**

Command Parameters

{A.B.C.D/X}

Specifies the IP address and mask of the route to add.

gw {A.B.C.D}

Specifies the gateway IP address.

Default

None.

Command Mode

Fabric IPsec Gateway Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

set ipsec <1-255>

Configures parameters for IPsec tunnels on Fabric IPsec Gateway Virtual Machine (VM).

Syntax

- **set ipsec <1-255> admin-state enable**
- **set ipsec <1-255> auth-key WORD <1-32>**

- **set ipsec <1-255> auth-method <psk | rsasig>**
- **set ipsec <1-255> cert-subject <subject_label>**
- **set ipsec <1-255> compression**
- **set ipsec <1-255> egress-shaping-rate <1-1000>**
- **set ipsec <1-255> encryption-key-length <128 | 256>**
- **set ipsec <1-255> esp <aes128gcm16-sha256 | aes256-sha256 | aes256gcm16-sha256>**
- **set ipsec <1-255> fe-tunnel-dest-ip {A.B.C.D}**
- **set ipsec <1-255> fragment-before-encrypt enable**
- **set ipsec <1-255> ipsec-dest-ip {A.B.C.D}**
- **set ipsec <1-255> mtu <1300-9000>**
- **set ipsec <1-255> responder-only <true | false>**
- **set ipsec <1-255> tunnel-name WORD <1-64>**

Command Parameters

admin-state enable

Enables IPsec on the specific IPsec tunnel.

auth-key WORD <1-32>

Specifies the pre-shared authentication key.



Note
Do not use special characters ?, \, &, <, >, #.

auth-method <psk | rsasig>

Specifies the authentication type for IPsec tunnels. The default is pre-shared key (psk).

cert-subject <subject_label>

Specifies the certificate identity to use with the IPsec tunnel.

compression

Enables IPsec compression on the specific IPsec tunnel. You must enable IPsec compression on both ends of the adjacency. The default is disabled.

egress-shaping-rate <1-1000>

Specifies the egress shaping rate for the IPsec tunnel.

encryption-key-length <128 | 256>

Specifies the encryption key length for the IPsec tunnel. The default encryption key length is 128 bit. As a best practice, use the newer *esp* parameter instead.

esp <aes128gcm16-sha256 | aes256-sha256 | aes256gcm16-sha256>

Specifies the ESP cipher suites for the IPsec tunnel. The default is aes128gcm16-sha256. aes256-sha256 is not supported in the current release.

fe-tunnel-dest-ip {A.B.C.D}

Specifies the destination IP address for Fabric Extend (FE) tunnel.

fragment-before-encrypt enable

Enables the fragmentation of packets before IPsec encryption on the tunnel. By default, fragmentation before encryption is disabled.

ipsec-dest-ip {A.B.C.D}

Specifies the destination IP address for IPsec tunnel.

mtu <1300-9000>

Specifies the Maximum Transmission Unit (MTU) value for the FE tunnel with both IPsec and fragmentation and assembly capabilities.

responder-only <true | false>

Specifies if the IPsec session in the FE tunnel will be in responder only mode or initiator mode. When in responder mode the FE tunnel will only respond to the incoming request and not initiate the IPsec connection. By default both sides of IPSec connection will be initiators in the FE tunnel. Configure the IPsec tunnel to be in responder only mode when there is Network Address Translation (NAT) between the IPsec connection. For more information about NAT, see *Fabric Engine User Guide*.

tunnel-name WORD <1-64>

Specifies a name for the IPsec tunnel.

Default

None.

Command Mode

Fabric IPsec Gateway Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

You must disable the IPsec administrative state on the tunnel before you can remove IPsec configuration.

set logical-intf-tunnel <1-255>

Configures a Fabric Extend (FE) tunnel with only fragmentation and reassembly capabilities, on the Fabric IPsec Gateway Virtual Machine (VM).

Syntax

- **set logical-intf-tunnel <1-255> fe-tunnel-dest-ip {A.B.C.D}**
- **set logical-intf-tunnel <1-255> mtu <750-9000>**
- **set logical-intf-tunnel <1-255> tunnel-name WORD <1-64>**
- **set logical-intf-tunnel <1-255> egress-shaping-rate <1-1000>**

Command Parameters

fe-tunnel-dest-ip {A.B.C.D}

Specifies the Fabric Extend (FE) tunnel destination IP address for the logical interface.

mtu <750-9000>

Specifies the Maximum Transmission Unit (MTU) value for the FE tunnel with only fragmentation and assembly capabilities.

tunnel-name WORD <1-64>

Specifies the name of the logical interface tunnel.

egress-shaping-rate<1-1000>

Specifies the egress shaper rate for the logical interface tunnel.

Default

None.

Command Mode

Fabric IPsec Gateway Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

show certificate-config

Displays the certificate configuration on Fabric IPsec Gateway Virtual Machine (VM).

Syntax

- **show certificate-config {ca-trustpoint [<ca-label>] | subject [<subject-label>]}**

Command Parameters

ca-trustpoint [<ca-label>]

Displays the CA trustpoint configuration. If you do not specify the certificate authority (CA) name, the command displays the details of all configured CAs.

subject [<subject-label>]

Displays the subject-related configuration.

Default

None.

Command Mode

Fabric IPsec Gateway Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

show certificates

Displays valid installed certificates on Fabric IPsec Gateway Virtual Machine (VM).

Syntax

- **show certificates <all | cacert [<ca-label>] | crl [<ca-label>]| csr [<ca-label>] | keys | signed [<ca-label>]>**

Command Parameters

all

Specifies all certificates.

cacert

Specifies certificates obtained from the certificate authority (CA).

<ca-label>

Specifies the name of the CA to filter the certificates. If you do not specify the name, the command displays the details for all configured CAs.

crl

Specifies Certificate Revocation List (CRL) certificates.

csr

Specifies certificate signing requests (CSR).

keys

Specifies keys.

signed

Specifies only signed certificates.

Default

None.

Command Mode

Fabric IPsec Gateway Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

show clock

Displays the Fabric IPsec Gateway date and time.

Syntax

- **show clock**

Default

None.

Command Mode

Fabric IPsec Gateway Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

show default-config-file

Displays the default configuration file on the Fabric IPsec Gateway Virtual Machine (VM).

Syntax

- **show default-config-file**

Command Mode

Fabric IPsec Gateway Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

Example

The following example displays the default configuration file on the Fabric IPsec Gateway VM.

```
Switch:1> enable
Switch:1# virtual-service figw console
Connected to domain figw
Escape character is ^Y

  <cr>
FIGW> show default-config-file
coupled.cfg
```

show ip route

Displays IP routes.

Syntax

- **show ip route**

Default

None.

Command Mode

Fabric IPsec Gateway Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

show ipsec-config

Displays the IPsec configuration on the Fabric IPsec Gateway Virtual Machine (VM).

Syntax

- **show ipsec-config <1-255>**

Command Parameters

<1-255>

Specifies the tunnel ID.

Command Mode

Fabric IPsec Gateway Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

show ipsec-logical-intf-config

Displays the logical interface IPsec configurations on the Fabric IPsec Gateway Virtual Machine (VM).

Syntax

- **show ipsec-logical-intf-config**

Command Parameters

<1-255>

Specifies the tunnel ID.

Command Mode

Fabric IPsec Gateway Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

show ipsec-logs

Displays the IPsec session logs on the Fabric IPsec Gateway Virtual Machine (VM).

Syntax

- **show ipsec-logs**

Command Mode

Fabric IPsec Gateway Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

Example

The following example displays the IPsec session logs on the Fabric IPsec Gateway VM:

```
Switch:1> enable
Switch:1# virtual-service figw console
Connected to domain figw
Escape character is ^Y

  <cr>
FIGW> show ipsec-logs
<<Month dd>> <<hh:mm:ss>> 15[IKE] <ipsec0-192.0.2.10|29> sending DPD request
<<Month dd>> <<hh:mm:ss>> 15[ENC] <ipsec0-192.0.2.10|29> generating INFORMATIONAL request 11832 [ ]
<<Month dd>> <<hh:mm:ss>> 15[NET] <ipsec0-192.0.2.10|29> sending packet: from 192.0.2.30[500] to
192.0.2.10[500] (76 bytes)
<<Month dd>> <<hh:mm:ss>> 13[NET] <ipsec0-192.0.2.10|29> received packet: from 192.0.2.10[500] to
192.0.2.30[500] (76 bytes)
<<Month dd>> <<hh:mm:ss>> 13[ENC] <ipsec0-192.0.2.10|29> parsed INFORMATIONAL response 11832 [ ]
<<Month dd>> <<hh:mm:ss>> 11[NET] <ipsec0-192.0.2.10|29> received packet: from 192.0.2.10[500] to
192.0.2.30[500] (76 bytes)
<<Month dd>> <<hh:mm:ss>> 11[ENC] <ipsec0-192.0.2.10|29> parsed INFORMATIONAL request 12924 [ ]
<<Month dd>> <<hh:mm:ss>> 11[ENC] <ipsec0-192.0.2.10|29> generating INFORMATIONAL response 12924 [ ]
<<Month dd>> <<hh:mm:ss>> 11[NET] <ipsec0-192.0.2.10|29> sending packet: from 192.0.2.30[500] to
192.0.2.10[500] (76 bytes)
<<Month dd>> <<hh:mm:ss>> 06[IKE] <ipsec0-192.0.2.10|29> sending DPD request
<<Month dd>> <<hh:mm:ss>> 06[ENC] <ipsec0-192.0.2.10|29> generating INFORMATIONAL request 11833 [ ]
<<Month dd>> <<hh:mm:ss>> 06[NET] <ipsec0-192.0.2.10|29> sending packet: from 192.0.2.30[500] to
192.0.2.10[500] (76 bytes)
--More-- (q = quit)
```

show ipsec-routes

Displays the IPsec routes configured on the Fabric IPsec Gateway Virtual Machine (VM).

Syntax

- **show ipsec-routes**

Command Mode

Fabric IPsec Gateway Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

Example

The following example displays IPsec routes configured on the Fabric IPsec Gateway VM:

```
Switch:1> enable
Switch:1# virtual-service figw console
Connected to domain figw
Escape character is ^Y

  <cr>
FIGW> show ipsec-routes
192.0.2.30 via 192.0.2.20 dev eth0.125  mtu lock 1950
192.0.2.1/24 dev eth0.30  proto kernel  scope link  src 192.0.2.2
192.0.2.10 via 192.0.2.45 dev eth0.30
192.0.2.100/24 dev eth0.125  proto kernel  scope link  src 192.0.2.60
192.0.2.11/16 dev docker0  proto kernel  scope link  src 192.0.2.12 linkdown
```

show ipsec-stats

Displays the IPsec encryption statistics on the Fabric IPsec Gateway Virtual Machine (VM).

Syntax

- **show ipsec-stats**

Command Mode

Fabric IPsec Gateway Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

Example

The following example displays the IPsec encryption statistics on the Fabric IPsec Gateway VM:

```
Switch:1> enable
Switch:1# virtual-service figw console
Connected to domain figw
Escape character is ^Y

  <cr>
FIGW> show ipsec-stats
src 192.0.2.30 dst 192.0.2.40
```

```
        proto esp spi 0xc0c2d9cd(3233995213) reqid 1(0x00000001) mode tunnel
        replay-window 32 seq 0x00000000 flag af-unspec (0x00100000)
        aead rfc4106(gcm(aes)) 0xa9c1923a4b4c5618ea2f3596de821261218bdea2 (160 bits) 128
        anti-replay context: seq 0x0, oseq 0x138, bitmap 0x00000000
        lifetime config:
          limit: soft (INF)(bytes), hard (INF)(bytes)
          limit: soft (INF)(packets), hard (INF)(packets)
          expire add: soft 3268(sec), hard 3600(sec)
          expire use: soft 0(sec), hard 0(sec)
        lifetime current:
          475650(bytes), 312(packets)
          add <<yyyy-mm-dd>> <<hh:mm:ss>> use <<yyyy-mm-dd>> <<hh:mm:ss>>
        stats:
          replay-window 0 replay 0 failed 0
src 192.0.2.40 dst 192.0.2.30
        proto esp spi 0xc92b08e5(3375040741) reqid 1(0x00000001) mode tunnel
        replay-window 32 seq 0x00000000 flag af-unspec (0x00100000)
        aead rfc4106(gcm(aes)) 0x9ca3568095298cefaaa709b9b932eb5141bd252c (160 bits) 128
        anti-replay context: seq 0x135, oseq 0x0, bitmap 0xffffffff
        lifetime config:
          limit: soft (INF)(bytes), hard (INF)(bytes)
          limit: soft (INF)(packets), hard (INF)(packets)
          expire add: soft 3341(sec), hard 3600(sec)
          expire use: soft 0(sec), hard 0(sec)
        lifetime current:
          470953(bytes), 309(packets)
          add <<yyyy-mm-dd>> <<hh:mm:ss>> use <<yyyy-mm-dd>> <<hh:mm:ss>>
        stats:
          replay-window 0 replay 0 failed 0
```

show ipsec-status

Displays the status of configured IPsec tunnel on the Fabric IPsec Gateway Virtual Machine (VM).

Syntax

- **show ipsec-status**

Command Mode

Fabric IPsec Gateway Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

Example

The following example displays the status of configured IPsec tunnel on the Fabric IPsec Gateway VM:

```
Switch:1> enable
Switch:1# virtual-service figw console
Connected to domain figw
```

```
Escape character is ^Y

  <cr>
FIGW> show ipsec-status
Status of IKE charon daemon (strongSwan 5.3.5, Linux 4.4.0-128-generic, x86_64):
  uptime: 13 days, since <<month, day hh:mm:ss year>>
  malloc: sbrk 2433024, mmap 0, used 369408, free 2063616
  worker threads: 11 of 16 idle, 5/0/0/0 working, job queue: 0/0/0/0, scheduled: 3
  loaded plugins: charon test-vectors aes rc2 sha1 sha2 md4 md5 random nonce x509 revocation
constraints
  pubkey pkcs1 pkcs7 pkcs8 pkcs12 pgp dnskey sshkey pem openssl fips-prf gmp agent xcbc hmac gcm attr
  kernel-netlink resolve socket-default connmark stroke updown
Listening IP addresses:
  192.0.2.40
  192.0.2.20
Connections:
ipsec0-192.0.2.5:  192.0.2.40...192.0.2.5  IKEv2, dpddelay=3s
ipsec0-192.0.2.5:   local:  [192.0.2.60] uses pre-shared key authentication
ipsec0-192.0.2.5:   remote: [192.0.2.5] uses pre-shared key authentication
ipsec0-192.0.2.5:   child:  192.0.2.60/32 === 192.0.2.5/32 TUNNEL, dpdaction=restart
Security Associations (1 up, 0 connecting):
ipsec0-192.0.2.5[29]: ESTABLISHED 21 hours ago, 192.0.2.40[192.0.2.60]...192.0.2.5[192.0.2.5]
ipsec0-192.0.2.5[29]: IKEv2 SPIs: dcf0a2d545d40679_i 55006e07252b9934_r*, pre-shared key
reauthentication in 2 hours
ipsec0-192.0.2.5[29]: IKE proposal: AES_CBC_128/HMAC_SHA1_96/PRF_HMAC_SHA1/MODP_2048
ipsec0-192.0.2.5{377}:  INSTALLED, TUNNEL, reqid 1, ESP SPIs: c92b08e5_i c0c2d9cd_o
ipsec0-192.0.2.5{377}:  AES_GCM_16_128, 291247 bytes_i (190 pkts, 6s ago), 297523 bytes_o (194 pkts,
1s ago), rekeying in 30 minutes
ipsec0-192.0.2.5{377}:   192.0.2.60/32 === 192.0.2.5/32
```

show logical-intf-config

Displays the logical interface configurations on the Fabric IPsec Gateway Virtual Machine (VM).

Syntax

- **show logical-intf-config <1-255>**

Command Parameters

<1-255>

Specifies the tunnel ID.

Command Mode

Fabric IPsec Gateway Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

show running-config

Displays the default configuration file on the Fabric IPsec Gateway Virtual Machine (VM).

Syntax

- **show running-config**

Command Mode

Fabric IPsec Gateway Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

Example

The following example displays the parameters configured currently on the Fabric IPsec Gateway VM.

```
Switch:1> enable
Switch:1# virtual-service figw console
Connected to domain figw
Escape character is ^Y

  <cr>
FIGW> show running-config
set global ipsec-tunnel-src-vlan 125
set global ipsec-tunnel-src-ip 192.0.2.1/24
set global lan-intf-vlan 30
set global lan-intf-ip 192.0.2.10/24
set global lan-intf-gw-ip 192.0.2.25
set global fe-tunnel-src-ip 192.0.2.55
set global wan-intf-gw-ip 192.0.2.11
set global mtu 1950
set ipsec 1 auth-key ******
set ipsec 1 fe-tunnel-dest-ip 192.0.2.70
set ipsec 1 encryption-key-length 128
set ipsec 1 admin-state enable
```

show version

Displays the current version of the Fabric IPsec Gateway Virtual Machine (VM).

Syntax

- **show version**

Command Mode

Fabric IPsec Gateway Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

Example

The following example displays the default configuration file on the Fabric IPsec Gateway VM.

```
Switch:1> enable
Switch:1# virtual-service figw28 console
Connected to domain figw28
Escape character is ^Y

  <cr>
FIGW> show version
FabricIPSecGW_VM_1.0
```

system passwd-change rwa

Changes the user password for Fabric IPsec Gateway configuration access.

Syntax

- **system passwd-change rwa**

Default

None.

Command Mode

Fabric IPsec Gateway Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

system save-full tech <filename>

Captures the output of all show commands in Fabric IPsec Gateway configuration and saves to a file.

Syntax

- **system save-full-tech <filename string:1-64>**

Default

None.

Command Mode

Fabric IPsec Gateway Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

traceroute

Trace route to an IP address on the Fabric IPsec Gateway Virtual Machine (VM).

Syntax

- **traceroute {A.B.C.D}**

Command Parameters

{A.B.C.D}

Specifies the IP address.

Default

None.

Command Mode

Fabric IPsec Gateway Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

vi

Opens the vi editor to edit files on the Fabric IPsec Gateway Virtual Machine (VM).

Syntax

- **vi <file name>**

Command Parameters

<file name>

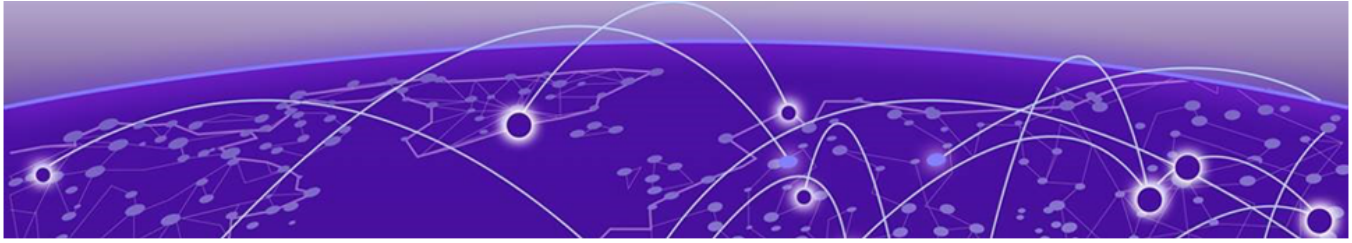
Specifies the name of the file to edit.

Command Mode

Fabric IPsec Gateway Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.



GigabitEthernet Interface Configuration

The following topics document commands available in GigabitEthernet Interface Configuration mode of the command line interface (CLI).

access-diffserv

Configure a port as trusted or untrusted to determine the Layer 3 QoS actions the switch performs. A trusted (core) port honors incoming Differentiated Services Code Point (DSCP) markings. An untrusted (access) port overrides DSCP markings.

Syntax

- **access-diffserv**
- **access-diffserv enable**
- **access-diffserv port {slot/port[/sub-port][-slot/port[/sub-port]] [,...][slot/all][all]}**
- **access-diffserv port {slot/port[/sub-port][-slot/port[/sub-port]] [,...][slot/all][all]} enable**
- **default access-diffserv**
- **default access-diffserv enable**
- **default access-diffserv port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **default access-diffserv port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} enable**
- **no access-diffserv**
- **no access-diffserv enable**
- **no access-diffserv port {slot/port[/sub-port][-slot/port[/sub-port]] [,...][slot/all][all]}**
- **no access-diffserv port {slot/port[/sub-port][-slot/port[/sub-port]] [,...][slot/all][all]} enable**

Command Parameters

enable

If enabled, specifies an access port and overrides incoming DSCP bits. If disabled, specifies a core port and honors and handles incoming DSCP bits. The default is disabled.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all] [all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

The default configuration is trusted (disabled).

Command Mode

GigabitEthernet Interface Configuration

action

Flush or clear the Address Resolution Protocol (ARP) tables for administrative and troubleshooting purposes. These actions are performed against a routed Gigabit Ethernet Interface. The related vlan action command performs similar functions against a VLAN interface.

Syntax

- **action {none | flushMacFdb | flushArp | flushIp | triggerRipUpdate | flushAll | clearLoopDetectAlarm }**
- **action port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} { none | flushMacFdb | flushArp | flushIp | triggerRipUpdate | flushAll | clearLoopDetectAlarm}**
- **default action**
- **default action port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

ClearLoopDetectAlarm

Sets action to clear loop detect alarm.

flushAll

Flush all tables.

flushArp

Flush ARP tables.

flushIp

Flush IP routing tables.

flushMacFdb

Flush the MAC FDB.

none

Sets action to none.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

triggerRipUpdate

Force RIP to update the routing table so that the port or VLAN uses the latest routing information.

Default

None

Command Mode

GigabitEthernet Interface Configuration

auto-negotiate enable (on an Ethernet port)

Enable AutoNegotiation on the Ethernet port to optimally operate on the network.

Syntax

- **auto-negotiate**
- **auto-negotiate enable**
- **auto-negotiate port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **auto-negotiate port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} enable**

- **default auto-negotiate**
- **default auto-negotiate enable**
- **default auto-negotiate port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **default auto-negotiate port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} enable**
- **no auto-negotiate**
- **no auto-negotiate enable**
- **no auto-negotiate port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **no auto-negotiate port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} enable**

Command Parameters

enable

Enables or disables AutoNegotiation for the port or other ports of the module or both.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

The default Auto-Negotation behavior depends on the switch model and transceiver type. For more information, see *Fabric Engine User Guide*.

Command Mode

GigabitEthernet Interface Configuration

auto-negotiation-advertisements

Configure Auto-Negotiation advertisements after you enable Auto-Negotiation.

Note

Because of port speed differences, not all parameters appear on all hardware platforms.

Syntax

- **auto-negotiation-advertisements 10-full**
- **auto-negotiation-advertisements 10-half**
- **auto-negotiation-advertisements 100-full**
- **auto-negotiation-advertisements 100-half**
- **auto-negotiation-advertisements 1000-full**
- **auto-negotiation-advertisements 10000-full**
- **auto-negotiation-advertisements 2500-full**
- **auto-negotiation-advertisements 25000-full**
- **auto-negotiation-advertisements 5000-full**
- **auto-negotiation-advertisements none**
- **auto-negotiation-advertisements port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} 10-full**
- **auto-negotiation-advertisements port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} 10-half**
- **auto-negotiation-advertisements port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} 100-full**
- **auto-negotiation-advertisements port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} 100-half**
- **auto-negotiation-advertisements port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} 1000-full**
- **auto-negotiation-advertisements port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} 10000-full**
- **auto-negotiation-advertisements port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} 2500-full**
- **auto-negotiation-advertisements port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} 25000-full**
- **auto-negotiation-advertisements port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} 5000-full**
- **auto-negotiation-advertisements port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} none**
- **default auto-negotiation-advertisements**

- **default auto-negotiation-advertisements port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **no auto-negotiation-advertisements**
- **no auto-negotiation-advertisements port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

10-full

Advertises 10 Mbps full-duplex.

10-half

Advertises 10 Mbps half-duplex.

100-full

Advertises 100 Mbps full-duplex.

100-half

Advertises 100 Mbps half-duplex.

1000-full

Advertises 1 Gbps full-duplex.

10000-full

Advertises 10 Gbps full-duplex.

2500-full

Advertises 2.5 Gbps full-duplex.

25000-full

Advertises 25 Gbps full-duplex.

5000-full

Advertises 5 Gbps full-duplex.

none

Configures the value to none.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

GigabitEthernet Interface Configuration

Usage Guidelines

This command does not apply to 7830 Series.

auto-nni

Enable to have the node create an IS-IS interface, attach the interface to an SPBM instance, and then enable IS-IS on the port interface.

Syntax

- **auto-nni**
- **no auto-nni**

Default

None

Command Mode

GigabitEthernet Interface Configuration

auto-recover-port

Enable or disable automatic recovery on a port.

Syntax

- **auto-recover-port [enable]**
- **auto-recover-port port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} [enable]**
- **default auto-recover-port [enable]**
- **default auto-recover-port port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} [enable]**
- **no auto-recover-port [enable]**
- **no auto-recover-port port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} [enable]**

Command Parameters

enable

Enables spoof detection on the port.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

auto-sense data (for port)

Configures an Auto-sense data I-SID on a port to separate data traffic.

Syntax

- **auto-sense data i-sid <1-15999999>**
- **no auto-sense data i-sid**

Command Parameters

<1-15999999>

Specifies the service interface identifier (I-SID).

Default

None.

Command Mode

GigabitEthernet Interface Configuration

auto-sense enable

Enables Auto-sense on a specific port.

Syntax

- **auto-sense enable**
- **default auto-sense enable**
- **no auto-sense enable [convert-to-config]**

Command Parameters

convert-to-config

Disables Auto-sense on specific port(s), but retains the current configuration. The dynamic configuration becomes a manual configuration and is visible in the **show running-config** output.

Default

By default, Auto-sense is disabled on the port(s).

Command Mode

GigabitEthernet Interface Configuration

auto-sense no-nni

Blocks the Auto-sense port from sending Fabric Connect LLDP TLVs and prevents the port from transitioning to the SD-WAN and NNI states.

Syntax

- **auto-sense no-nni**
- **default auto-sense no-nni**
- **no auto-sense no-nni**

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

auto-sense wait-interval (for a port)

Configures the time on a port, in seconds, for Auto-sense to wait for a Link Layer Discovery Protocol (LLDP) neighbor to be detected in the Auto-sense wait state before transitioning to the Auto-sense onboarding state. A port configuration takes precedence over a global wait-interval configuration.

Syntax

- **auto-sense wait-interval seconds <2-120>**
- **default auto-sense wait-interval**

Command Parameters

<2-120>

Specifies the time interval, in seconds.

Default

The default value is 35 seconds.

Command Mode

GigabitEthernet Interface Configuration

auto-speed

Configure auto-speed on one or more ports.

Syntax

- **auto-speed enable [port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} enable]**
- no **auto-speed enable [port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} enable]**

Command Parameters

enable

Enables or disables auto-speed for a port or ports.

port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)

- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

The default is enabled.

Command Mode

GigabitEthernet Interface Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine User Guide*.

brouter

Configures a port as a brouter port.

Syntax

- **brouter port {slot/port[/sub-port]} vlan <2-4059> subnet {<A.B.C.D/X> | <A.B.C.D> <A.B.C.D>} [mac-offset <0-511>] [name WORD <0-64>] [state-disabled]**
- **brouter vlan <2-4059> subnet {A.B.C.D/X | A.B.C.D A.B.C.D} [mac-offset <0-511>] [name WORD <0-64>] [state-disabled]**
- **no brouter [port {slot/port[/sub-port]}]**

Command Parameters

mac-offset <0-511>

Specifies a number by which to offset the MAC address from the chassis MAC address. This ensures that each IP address has a different MAC address. If you omit this variable, a unique MAC offset is automatically generated.

name *WORD <0-64>*

Specifies the name of the IP interface.

port *{slot/port[/sub-port]}*

Identifies a single slot and port. If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

state-disabled

Creates the IP interface in an administratively disabled state. This parameter is useful if you want to preconfigure an IP interface, including the routing protocol configuration for that interface, and enable it later during a maintenance window. By default, the switch enables an IP interface after you configure the primary IP address.

subnet {<A.B.C.D/X> | <A.B.C.D> <A.B.C.D>}

Assigns an IP address and mask for the port. You can use either the *<A.B.C.D/X>* or *<A.B.C.D> <A.B.C.D>* notation format.

vlan <2-4059>

Specifies the VLAN ID in the range of 2 to 4059. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1. By default, the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998.

Default

None

Command Mode

GigabitEthernet Interface Configuration

Usage Guidelines

The *state-disabled* parameter does not appear in a saved configuration file. The configuration file uses the **no ip interface enable** syntax.

channelize

Enable port channelization. Use this feature to configure a single port to operate as four logical interfaces.

Syntax

- **channelize enable**
- **channelize port {slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]} enable**
- **default channelize enable**
- **default channelize port {slot/port[/sub-port][-slot/port[/sub-port]] [,...][slot/all][all]} enable**

- **no channelize enable**
- **no channelize port {slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]} enable**

Command Parameters

enable

Enable channelization for all ports.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all] [all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

By default, ports are not channelized, which means that a port operates as one single port at the fully supported speed. The switch automatically channelizes a port if the port operates in Auto-sense mode and you insert one of the following:

- QSFP+ to SFP+ adapter
- QSFP28 to SFP28 adapter
- QSFP+ to 2xSFP+ passive or active breakout cable
- QSFP28 to 4xSFP28 passive or active breakout cable

Command Mode

GigabitEthernet Interface Configuration

Usage Guidelines

Not all hardware platforms support channelization. For information about hardware support, see your hardware documentation.

To disable automatic channelization on a port, you must disable Auto-sense on the port.

clear mac-address-table dynamic

Clear the dynamic entries in the MAC address table.

Syntax

- **clear mac-address-table dynamic 0x00:0x00:0x00:0x00:0x00:0x00 <1-4059>**

Command Parameters

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

0x00:0x00:0x00:0x00:0x00:0x00

Specifies the MAC address.

Default

None

Command Mode

GigabitEthernet Interface Configuration

default all

Configure all port parameters to the default values.

Syntax

- **default all -y**
- **default all auto-sense**

Command Parameters

auto-sense

Clears the existing configuration and enables Auto-sense on the port.

-y

Suppresses the confirmation question.

Default

None

Command Mode

GigabitEthernet Interface Configuration

default-vlan-id

Configure the default VLAN ID for the port.

Syntax

- **default-vlan-id <0-4059>**
- **default-vlan-id port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} <0-4059>**

Command Parameters

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

<0-4059>

Specifies the VLAN ID.

Default

None

Command Mode

GigabitEthernet Interface Configuration

duplex

Configure the duplex mode on the Ethernet module. This command applies to 10/100/1000 Mb/s ports.

Syntax

- **default duplex**
- **default duplex port {slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]}**
- **duplex { half | full }**
- **duplex port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

<half|full>

Specifies half- or full-duplex mode. 1 and 10 Gb/s ports must use full-duplex mode.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

The default is half.

Command Mode

GigabitEthernet Interface Configuration

eapol

Configure Extensible Authentication Protocol (EAP) on a specific port when you do not want EAPol applied globally.

Syntax

- **default eapol enable**
- **default eapol port {slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]} supplicant-timeout**
- **default eapol port {slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]} transmit-interval**

- **default eapol supplicant-timeout**
- **default eapol transmit-interval**
- **eapol port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} fail-open-vlan <1-4059>**
- **eapol port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} guest-vlan <1-4059>**
- **eapol port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} max-request <1-10>**
- **eapol port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} quiet-interval <1-65535>**
- **eapol port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} supplicant-timeout <1-65535>**
- **eapol port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} supplicant-timeout <1-65535>**
- **eapol port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} transmit-interval <1-65535>**
- **eapol status authorized**
- **eapol supplicant-timeout <1-65535>**
- **eapol transmit-interval <1-65535>**
- **no eapol enable**

Command Parameters

fail-open-vlan <1-4059>

Specifies the fail open VLAN ID.

guest-vlan <1-4059>

Specifies the guest VLAN ID.

max-request <1-10>

Specifies the maximum number of attempts to send the packet to the supplicant.

quiet-interval <1-65535>

Specifies the time in seconds to wait between authentication failure and start of a new authentication.

supplicant-timeout <1-65535>

Specifies the time in seconds to wait for response from supplicant for all EAP packets except EAP Request/Identity.

transmit-interval <1-65535>

Specifies the time in seconds to wait for response from supplicant for EAP Request/Identity packets.

Default

None

Command Mode

GigabitEthernet Interface Configuration

eapol fail-open-isid

Specifies the Fail Open I-SID for this port. If the switch declares the RADIUS servers unreachable, all new devices are allowed access into the configured Fail Open I-SID.

Syntax

- **default eapol port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} fail-open-isid <1-16000000>**
- **eapol port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} fail-open-isid <1-16000000>**
- **no eapol fail-open-isid**

Command Parameters

<1-600000>

Specifies the Fail Open I-SID. 0 indicates that Fail Open I-SID is not enabled for this port.

Default

None

Command Mode

GigabitEthernet Interface Configuration

eapol fail-open-vlan

Specifies the Fail Open VLAN ID for this port. If the switch declares the RADIUS servers unreachable, then all new devices are allowed access into the configured Fail Open VLAN. 0 indicates that Fail Open VLAN is not enabled for this port.

Syntax

- **default eapol fail-open-vlan**
- **eapol fail-open-vlan <1-4059>**
- **no eapol fail-open-vlan**

Command Parameters

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

GigabitEthernet Interface Configuration

eapol guest-isid

Configure the desired Guest I-SID.

Syntax

- **default eapol port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} guest-isid <1-16000000>**
- **eapol port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} guest-isid <1-16000000>**
- **no eapol guest-isid**

Command Parameters

<1-16000000>

Specifies the Guest I-SID. 0 indicates that Guest I-SID is not enabled for this port.

Default

None

Command Mode

GigabitEthernet Interface Configuration

eapol guest-vlan

Configure the desired Guest VLAN ID.

Syntax

- **default eapol guest-vlan**
- **eapol guest-vlan <1-4059>**
- **no eapol guest-vlan**

Command Parameters

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

GigabitEthernet Interface Configuration

eapol max-request

Configures the maximum EAP requests sent to supplicant before timing out the session.

Syntax

- **default eapol max-request**
- **default eapol port {slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]} max-request**
- **eapol max-request <1-10>**
- **eapol port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} max-request <1-10>**

Command Parameters

<1-10>

Specifies the maximum EAP requests sent to supplicant before timing out the session.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

The default is 2.

Command Mode

GigabitEthernet Interface Configuration

eapol multihost eap-mac-max

Configure maximum EAPOL clients allowed on the port at one time.

Syntax

- **default eapol multihost eap-mac-max**
- **eapol multihost eap-mac-max <0-32>**

Command Parameters

<0-32>

Specifies the maximum EAPOL clients allowed on the port at one time. The default is 2.

Default

The default is 2.

Command Mode

GigabitEthernet Interface Configuration

eapol multihost eap-oper-mode

Configure the EAPoL operational mode.

Syntax

- **default eapol multihost eap-oper-mode**
- **eapol multihost eap-oper-mode {mhmv | mhsa}**

Command Parameters

mhmv | mhsa

Specifies the EAPoL operational mode.

Default

The default is MHMV.

Command Mode

GigabitEthernet Interface Configuration

eapol multihost mac-max

Configures the maximum MAC clients, both EAP and NEAP, supported on a port.

Syntax

- **default eapol multihost mac-max**
- **eapol multihost mac-max <1-8192>**

Command Parameters

mac-max <1-8192>

Specifies the maximum number of EAP and NEAP MAC addresses allowed on the port. The maximum limit is 32 MAC addresses.

Default

The default is 1.

Command Mode

GigabitEthernet Interface Configuration

eapol multihost non-eap-mac-max

Configure the maximum Non EAPOL clients allowed on the port at one time.

Syntax

- **default eapol multihost non-eap-mac-max**
- **eapol multihost non-eap-mac-max <0-8192>**

Command Parameters

<1-8192>

Specifies the maximum non-EAPoL clients allowed on the port at one time. The default is 2.

Default

The default is 2.

Command Mode

GigabitEthernet Interface Configuration

eapol multihost radius-non-eap-enable

Enable RADIUS based non-EAP authentication.

Syntax

- **default eapol multihost radius-non-eap-enable**
- **eapol multihost radius-non-eap-enable**
- **no eapol multihost radius-non-eap-enable**

Default

The default is disable.

Command Mode

GigabitEthernet Interface Configuration

eapol quiet-interval

Specifies the time interval between authentication failure and start of a new authentication.

Syntax

- **default eapol port {slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]} quiet-interval**
- **default eapol quiet-interval**
- **eapol port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} quiet-interval <1-65535>**
- **eapol quiet-interval <1-65535>**

Command Parameters

<1-65535>

Specifies the time interval in seconds between authentication failure and start of a new authentication.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

The default is 60.

Command Mode

GigabitEthernet Interface Configuration

eapol radius-dynamic-server enable

Enable EAP processing requests from the RADIUS Dynamic Authorization Server.

Syntax

- **eapol radius-dynamic-server enable**

Command Parameters

enable

Enable EAP processing requests from the RADIUS Dynamic Authorization Server.

Default

The default is enabled.

Command Mode

GigabitEthernet Interface Configuration

eapol re-authentication

Configures reauthentication.

Syntax

- **default eapol port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} re-authentication**
- **default eapol port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} re-authentication enable**
- **default eapol re-authentication**
- **default eapol re-authentication enable**
- **eapol port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} re-authentication**
- **eapol port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} re-authentication enable**
- **eapol re-authentication**
- **eapol re-authentication enable**
- **no eapol port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} re-authentication**
- **no eapol port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} re-authentication enable**
- **no eapol re-authentication**
- **no eapol re-authentication enable**

Command Parameters

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)

- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

enable

Enables reauthenticating an existing supplicant at a specified time interval. The default is disabled.

Default

None

Command Mode

GigabitEthernet Interface Configuration

eapol re-authentication-period <0, 60-65535>

Re-authenticates an existing supplicant at the time interval specified. Specifies the time interval, in seconds, between successive re-authentications.

Syntax

- **default eapol [port {slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]}] re-authentication-period**
- **default eapol re-authentication-period**
- **eapol [port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}] re-authentication-period <0, 60-65535>**

Default

The default is 3600 (1 hour).

Command Mode

GigabitEthernet Interface Configuration

Usage Guidelines

Configure the value to 0 to prevent EAP or NEAP sessions from aging out.



Caution
Preventing re-authentication can introduce a security risk.

eapol status

Enable Extensible Authentication Protocol (EAPoL) on an interface.

Syntax

- **default eapol port {slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]} status**
- **eapol port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} status authorized**
- **eapol port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} status auto**
- **eapol status {authorized|auto}**
- **no eapol port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} status**

Command Parameters

authorized

Specifies the port is always authorized.

auto

Specifies that port authorization depends on the results of the EAPoL authentication by the RADIUS server.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

GigabitEthernet Interface Configuration

eapol traffic-control

Configure Wake-On-LAN functionality.

Syntax

- **default eapol traffic-control**
- **eapol traffic-control {in | in-out}**
- **no eapol traffic-control**

Command Parameters

in

Specifies to block inbound traffic for unauthenticated devices.

in-out

Specifies to block inbound and outbound traffic for unauthenticated devices.

Default

in-out

Command Mode

GigabitEthernet Interface Configuration

eapol voice lldp-auth

Enables Link Layer Discovery Protocol (LLDP) voice authentication of IP phones on a specific port.

Syntax

- **default eapol voice lldp-auth**
- **eapol voice lldp-auth**
- **no eapol voice lldp-auth**

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

enable-diffserv

Enable DiffServ so that the switch provides DiffServ-based QoS on that port.

Syntax

- **default enable-diffserv**
- **default enable-diffserv enable**
- **default enable-diffserv port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **default enable-diffserv port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} enable**
- **enable-diffserv**
- **enable-diffserv enable**
- **enable-diffserv port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **enable-diffserv port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} enable**
- **no enable-diffserv**
- **no enable-diffserv enable**
- **no enable-diffserv port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **no enable-diffserv port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} enable**

Command Parameters

enable

Enables DiffServ for the specified port. The default is enabled.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

GigabitEthernet Interface Configuration

encapsulation dot1q

Enable tagging on the ports before configuring Untagged VLANs.

Syntax

- **default encapsulation dot1q**
- **default encapsulation dot1q port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **encapsulation dot1q**
- **encapsulation dot1q port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **no encapsulation dot1q**
- **no encapsulation dot1q port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

dot1q

Sets encapsulation. dot1q enables trunking on the MLT.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

GigabitEthernet Interface Configuration

endpoint-tracking (for a port)

Create and enable Endpoint Tracking on ports. Creating and enabling Endpoint Tracking on ports can be accomplished using a one-step or two-step process; you can create and enable at the same time, or create but leave disabled, and then enable at a later time.

Use the no operator with **endpoint-tracking** to delete, and the no operator with **endpoint-tracking enable** to disable.

Syntax

- **endpoint-tracking**
- **endpoint-tracking enable**
- **no endpoint-tracking**
- **no endpoint-tracking enable**

Command Parameters

enable

Creates and enables Endpoint Tracking, or enables Endpoint Tracking previously created on a port.

Default

Disabled

Command Mode

GigabitEthernet Interface Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

energy-saver (for port)

Enables Energy Saver on a specific port or range of ports.

Syntax

- **default energy-saver port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} enable**
- **energy-saver port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} enable**
- **no energy-saver port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} enable**

Command Parameters

enable

Enables energy savings on ports.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

Disabled

Command Mode

GigabitEthernet Interface Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

energy-saver eee enable

Enable Energy Efficient Ethernet (EEE) on a port.

Syntax

- **energy-saver eee enable**

- **no energy-saver eee enable**

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

fa authentication-key (for a port)

Configure the Fabric Attach (FA) authentication key.

Syntax

- **default fa authentication-key**
- **fa authentication-key WORD<0-32>**

Command Parameters

WORD<0-32>

Configures the authentication key on the port.

Default

None

Command Mode

GigabitEthernet Interface Configuration

fa enable (for a port)

Enable FA on a port.

Syntax

- **fa enable**
- **no fa enable**

Default

None

Command Mode

GigabitEthernet Interface Configuration

fa management (for a port)

Configure FA management on a port.

Syntax

- **default fa management i-sid**
- **fa management i-sid <1-16777215> c-vid <1-4094>**
- **no fa management i-sid**

Command Parameters

i-sid <1-16777215>

Specifies the management I-SID.

c-vid <4094>

Specifies the customer VLAN ID of the port on the FA server.

Default

None

Command Mode

GigabitEthernet Interface Configuration

fa message-authentication (for a port)

Configure FA message authentication on port.

Syntax

- **default no fa message-authentication**
- **fa message-authentication**
- **no fa message-authentication**

Default

None

Command Mode

GigabitEthernet Interface Configuration

fa tcn enable (for a port)

Enables Fabric Attach (FA) Ring Topology Change Notification (TCN) processing on an FA-enabled port that connects to an ISW-Series Managed Industrial Ethernet Switches switch.

Syntax

- **fa tcn enable**
- **no fa tcn enable**

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

fec

Configures Forward Error Correction (FEC) on either a 100 GbE port or a channelized 100 GbE port operating at 25 Gbps speed.

Syntax

- **default fec port {slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]}**
- **fec {auto|cl91|cl108|cl74}**
- **no fec port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

{auto|cl91|cl108|cl74}

Configures FEC on either a 100 GbE port or a channelized 100 GbE port operating at 25 Gbps speed. On the 100 GbE ports, only the Clause 91 and Clause 108 options are supported. On channelized ports, you can configure either Clause 108 for extra latency or Clause 74 for reduced latency. You can also configure the

auto option to automatically configure FEC based on port speed and pluggable module type.

FEC is not supported on 100 Gbps ports that operate at 40 Gbps speed or on a management port. On ports that support FEC configuration, ensure that you configure the same option at both end points. Otherwise, the link does not come up.

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

Usage Guidelines

flex-uni enable (for a port)

Configure a Switched UNI (S-UNI)Switched UNI on a port.

Syntax

- **flex-uni enable**
- **default flex-uni enable**
- **no flex-uni enable**

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

high-secure enable

Protect the switch against IP packets with illegal IP addresses such as loopback addresses or a source IP address of ones, or Class D or Class E addresses from being routed.

Syntax

- **default high-secure**
- **default high-secure enable**

- **default high-secure port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **default high-secure port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} enable**
- **high-secure**
- **high-secure enable**
- **high-secure port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **high-secure port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} enable**
- **no high-secure**
- **no high-secure enable**
- **no high-secure port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **no high-secure port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} enable**

Command Parameters

enable

Enables the high secure feature that blocks packets with illegal IP addresses. This flag is disabled by default.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

GigabitEthernet Interface Configuration

ip arp-inspection

Sets the trust factor associated with a port for DAI feature.

Syntax

- **default ip arp-inspection**
- **ip arp-inspection <trusted|untrusted>**
- **no ip arp-inspection**

Command Parameters

trusted

Sets the trust factor as trusted on the port for DAI.

untrusted

Sets the trust factor as untrusted on the port for DAI.

Default

The default is untrusted.

Command Mode

GigabitEthernet Interface Configuration

ip arp-proxy enable (for a port)

Configure an ARP proxy to allow a router to answer a local ARP request for a remote destination.

Syntax

- **default ip arp-proxy**
- **default ip arp-proxy enable**
- **ip arp-proxy enable**
- **no ip arp-proxy**
- **no ip arp-proxy enable**

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

ip arp-response (for a port)

Enable Address Resolution Protocol (ARP) on the switch to allow a router to answer a local ARP request.

Syntax

- **default ip arp-response**
- **ip arp-response**
- **no ip arp-response**

Default

None

Command Mode

GigabitEthernet Interface Configuration

ip bfd (for a port)

Enable and configure Bidirectional Forwarding Detection (BFD) on a port.

Syntax

- **default ip bfd enable**
- **default ip bfd interval**
- **default ip bfd min-rx**
- **default ip bfd multiplier**
- **default ip bfd port**
- **ip bfd enable**
- **ip bfd interval**
- **ip bfd min-rx**
- **ip bfd multiplier**
- **ip bfd port**
- **no ip bfd**
- **no ip bfd port**

Command Parameters

enable

Enable BFD on a port.

interval

Specifies the transmit interval in milliseconds. The default is 200 ms.

The minimum value for the transmit interval is 100 ms. You can configure a maximum of 4 BFD sessions with the minimum value for the transmit interval. You can configure the remaining BFD sessions with a transmit interval that is greater than or equal to the 200 ms default value.

min-rx

Specifies the receive interval in milliseconds. The default is 200 ms.

The minimum value for the receive interval is 100 ms. You can configure a maximum of 4 BFD sessions with the minimum value for the receive interval. You can configure the remaining BFD sessions with a receive interval that is greater than or equal to the 200 ms default value.

multiplier

Specifies the multiplier used to calculate the amount of time BFD waits before it declares a receive timeout. The default is 3.

If you configure the transmit interval or the receive interval as 100 ms, you must configure a value of 4 or greater for the multiplier.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all] [all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

ip dhcp-relay (for a port)

Configure Dynamic Host Configuration Protocol (DHCP) Relay on an interface. The command no ip dhcp-relay disables DHCP Relay but does not delete the DHCP entry.

Syntax

- **default ip dhcp-relay**
- **default ip dhcp-relay broadcast**
- **default ip dhcp-relay circuitId**
- **default ip dhcp-relay max-hop**
- **default ip dhcp-relay min-sec**
- **default ip dhcp-relay mode**
- **default ip dhcp-relay remoteId**
- **default ip dhcp-relay trusted**
- **ip dhcp-relay**
- **ip dhcp-relay broadcast**
- **ip dhcp-relay circuitId**
- **ip dhcp-relay clear-counter**
- **ip dhcp-relay max-hop <1-16>**
- **ip dhcp-relay min-sec <0-65535>**
- **ip dhcp-relay mode { bootp | dhcp | bootp_dhcp }**
- **ip dhcp-relay remoteId**
- **ip dhcp-relay trusted**
- **no ip dhcp-relay**
- **no ip dhcp-relay broadcast**
- **no ip dhcp-relay circuitId**
- **no ip dhcp-relay remoteId**
- **no ip dhcp-relay trusted**

Command Parameters

broadcast

Enables the device to send the server reply as a broadcast to the end station. After you disable this variable, the device sends the server reply as a unicast to the end station.

circuitId

Enables the device to insert the Option 82 Circuit ID into the packets sent to the server (enables DHCP Option 82). The default is disabled.

clear-counter

Clears the dhcp-relay counter.

max-hop <1-16>

Configures the maximum number of hops before a BootP/DHCP packet is discarded (1-16). The default is 4.

min-sec <0-65535>

Configures the minimum seconds count for Dynamic Host Configuration Protocol (DHCP). If the secs field in the BootP/DHCP packet header is greater than this value, the device relays or forwards the packet; otherwise, the packet is dropped (0- 65535). The default is 0 seconds.

mode <bootp|dhcp|bootp_dhcp>

Configures DHCP mode to forward BootP messages only, Dynamic Host Configuration Protocol (DHCP) messages only, or both. The default is both.

remoteId

Enables the device to insert the Option 82 Remote ID into the packets sent to the server (enables DHCP Option 82). The default is disabled.

trusted

Configures the circuit as trusted in an Option 82 context.

Default

None

Command Mode

GigabitEthernet Interface Configuration

ip dhcp-relay fwd-path (for a port)

Create the forwarding path from the client to the server.

Syntax

- **default ip dhcp-relay fwd-path {A.B.C.D}**
- **default ip dhcp-relay fwd-path {A.B.C.D} vrid <1-255>**
- **ip dhcp-relay fwd-path {A.B.C.D}**
- **ip dhcp-relay fwd-path {A.B.C.D} disable**
- **ip dhcp-relay fwd-path {A.B.C.D} enable**
- **ip dhcp-relay fwd-path {A.B.C.D} vrid <1-255>**
- **no ip dhcp-relay fwd-path {A.B.C.D}**
- **no ip dhcp-relay fwd-path {A.B.C.D} vrid <1-255>**

Command Parameters

{A.B.C.D}

Creates a forwarding path to the Dynamic Host Configuration Protocol (DHCP) server. A.B.C.D is the IP address of the server. The default IP address of the relay is the address of the interface.



Tip

If the relay is a virtual router configured on this interface, you must set the vrid.

disable

Disables the forwarding path.

enable

Enables the forwarding path.

vrid <1-255>

Specifies the virtual router ID. The virtual router acts as the default router for one or more associated addresses.

Default

None

Command Mode

GigabitEthernet Interface Configuration

ip dhcp-relay fwd-path mode (for a port)

Modify Dynamic Host Configuration Protocol (DHCP) mode to forward BootP messages only, DHCP messages only, or both.

Syntax

- **default ip dhcp-relay fwd-path {A.B.C.D} mode**
- **ip dhcp-relay fwd-path {A.B.C.D} mode bootp**
- **ip dhcp-relay fwd-path {A.B.C.D} mode bootp_dhcp**
- **ip dhcp-relay fwd-path {A.B.C.D} mode dhcp**

Command Parameters

mode <bootp|dhcp|bootp_dhcp>

Configures DHCP mode to forward BootP messages only, Dynamic Host Configuration Protocol (DHCP) messages only, or both. The default is both.

Default

The default mode is both.

Command Mode

GigabitEthernet Interface Configuration

ip dhcp-snooping (for port)

Sets the trust factor associated with a port for DHCP Snooping feature.

Syntax

- **default ip dhcp-snooping**
- **ip dhcp-snooping <trusted|untrusted>**
- **no ip dhcp-snooping**

Command Parameters

trusted

Sets the trust factor as trusted on the port for DHCP Snooping.

untrusted

Sets the trust factor as untrusted on the port for DHCP Snooping.

Default

The default is untrusted.

Command Mode

GigabitEthernet Interface Configuration

ip directed-broadcast (for a port)

Configure the device to forward directed broadcasts.

Syntax

- **default ip directed-broadcast [enable]**
- **ip directed-broadcast [enable]**
- **no ip directed-broadcast [enable]**

Command Parameters

enable

Specifies that an Isolated Routing Port (IRP) can forward directed broadcast traffic. A directed broadcast is a frame sent to the subnet broadcast address on a remote IP subnet. By disabling or suppressing directed broadcast on an interface,

all frames sent to the subnet broadcast address for a local router interface are dropped. Disabling this function protects a host from possible denial of service (DoS) attacks.

With the feature enabled, the Control Processor (CP) does not receive a copy of the directed broadcast. As a result, the system does not respond to a subnet broadcast ping sent from a remote subnet.

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

ip forward-protocol udp (on a port)

Configure UDP protocols to determine which UDP broadcasts are forwarded

Syntax

- **default ip forward-protocol udp**
- **ip forward-protocol udp**
- **no ip forward-protocol udp**

Default

None

Command Mode

GigabitEthernet Interface Configuration

ip forward-protocol udp broadcastmask (on a port)

Configure the broadcast mask on the IP forwarding list.

Syntax

- **default ip forward-protocol udp port {slot/port[/sub-port]} broadcastmask {A.B.C.D}**
- **default ip forward-protocol udp port {slot/port[/sub-port]} broadcastmask {A.B.C.D} maxttl <1-16>**
- **ip forward-protocol udp port {slot/port[/sub-port]} broadcastmask {A.B.C.D}**

- **ip forward-protocol udp port {slot/port[/sub-port]} broadcastmask {A.B.C.D} maxttl <1-16>**
- **no ip forward-protocol udp port {slot/port[/sub-port]} broadcastmask {A.B.C.D}**
- **no ip forward-protocol udp port {slot/port[/sub-port]} broadcastmask {A.B.C.D} maxttl <1-16>**

Command Parameters

broadcastmask {A.B.C.D}

Sets the interface broadcast mask (the interface broadcast mask can be different from the interface mask). A.B.C.D is an IP address in a.b.c.d format.

maxttl <1-16>

Sets the maximum time-to-live value (TTL) for the interface. The range is 1 to 16.

Default

None

Command Mode

GigabitEthernet Interface Configuration

ip forward-protocol udp maxttl (on a port)

Set the maximum time to live.

Syntax

- **default ip forward-protocol udp maxttl <1-16>**
- **ip forward-protocol udp maxttl <1-16>**
- **no ip forward-protocol udp maxttl <1-16>**

Command Parameters

maxttl <1-16>

Sets the maximum time-to-live value (TTL) for the interface. The range is 1 to 16.

Default

None

Command Mode

GigabitEthernet Interface Configuration

ip forward-protocol udp port

Configure a UDP port forward entry to add or remove a port forward entry.

Syntax

- **default ip forward-protocol udp port {slot/port[/sub-port]} broadcastmask {A.B.C.D}**
- **default ip forward-protocol udp port {slot/port[/sub-port]} broadcastmask {A.B.C.D} maxttl <1-16>**
- **default ip forward-protocol udp port {slot/port[/sub-port]} maxttl <1-16>**
- **default ip forward-protocol udp port {slot/port} portfwdlist <1-1000>**
- **ip forward-protocol udp port {slot/port[/sub-port]} broadcastmask {A.B.C.D}**
- **ip forward-protocol udp port {slot/port[/sub-port]} broadcastmask {A.B.C.D} maxttl <1-16>**
- **ip forward-protocol udp port {slot/port[/sub-port]} maxttl <1-16>**
- **ip forward-protocol udp port {slot/port[/sub-port]} portfwdlist <1-1000>**
- **no ip forward-protocol udp port {slot/port[/sub-port]} broadcastmask {A.B.C.D}**
- **no ip forward-protocol udp port {slot/port[/sub-port]} broadcastmask {A.B.C.D} maxttl <1-16>**
- **no ip forward-protocol udp port {slot/port[/sub-port]} maxttl <1-16>**
- **no ip forward-protocol udp port {slot/port[/sub-port]} portfwdlist <1-1000>**

Command Parameters

broadcastmask {A.B.C.D}

Sets the interface broadcast mask (the interface broadcast mask can be different from the interface mask). A.B.C.D is an IP address in a.b.c.d format.

maxttl <1-16>

Sets the maximum time-to-live value (TTL) for the interface. The range is 1 to 16.

portfwdlist <1-1000>

Creates a port forwarding list in the range of 1 to 1000.

Default

None

Command Mode

GigabitEthernet Interface Configuration

ip forward-protocol udp portfwdlist (on a port)

Configure the UDP port forwarding list.

Syntax

- **default ip forward-protocol udp portfwdlist <1-1000>**
- **ip forward-protocol udp portfwdlist <1-1000>**
- **no ip forward-protocol udp portfwdlist <1-1000>**

Command Parameters

portfwdlist <1-1000>

Creates a port forwarding list in the range of 1 to 1000.

Default

None

Command Mode

GigabitEthernet Interface Configuration

ip igmp access-list (for a port)

Configure multicast access control for a Internet Group Management Protocol (IGMP) Ethernet port to restrict access to certain multicast streams and to protect multicast streams from spoofing (injecting data to the existing streams).

Syntax

- **default ip igmp access-list WORD<1-64> {A.B.C.D/X}**
- **ip igmp access-list WORD<1-64> {A.B.C.D/X} {deny-tx | deny-rx | deny-both | allow-only-tx | allow-only-rx | allow-only-both}**
- **no ip igmp access-list WORD<1-64> {A.B.C.D/X}**

Command Parameters

{A.B.C.D/X}

Creates an access control group entry for a specific Internet Group Management Protocol (IGMP) interface. Specifies the IP address of the host and the subnet mask used to determine the host or hosts covered by this configuration. You can

use the host subnet mask to restrict access to a portion of the network for the host.

{deny-tx|deny-rx|deny-both|allow-only-tx|allow-only-rx|allow-only-both}

Indicates the action for the specified Internet Group Management Protocol (IGMP) interface. For example, if you specify deny-both, the interface denies both transmitted and received traffic

WORD<1-64>

Specifies the name of the access list from 1-64 characters.

Default

None

Command Mode

GigabitEthernet Interface Configuration

ip igmp access-list mode (for a port)

Changes the mode for an existing access list on the Ethernet port.

Syntax

- **default ip igmp access-list WORD<1-64> {A.B.C.D/X}**
- **ip igmp access-list WORD<1-64> {A.B.C.D/X} mode {deny-tx | deny-rx | deny-both | allowonly-tx | allow-only-rx | allow-only-both}**
- **no ip igmp access-list WORD<1-64> {A.B.C.D/X}**

Command Parameters

{A.B.C.D/X}

Creates an access control group entry for a specific Internet Group Management Protocol (IGMP) interface. Specifies the IP address of the host and the subnet mask used to determine the host or hosts covered by this configuration. You can use the host subnet mask to restrict access to a portion of the network for the host.

deny-tx | deny-rx | deny-both | allowonly-tx | allowonly-rx | allowonly-both

Indicates the action for the specified Internet Group Management Protocol (IGMP) interface. For example, if you specify deny-both, the interface denies both transmitted and received traffic.

WORD<1-64>

Specifies the name of the access list from 1-64 characters.

Default

None

Command Mode

GigabitEthernet Interface Configuration

ip igmp compatibility-mode (for a port)

Enables IGMP v2-v3 compatibility mode.

Syntax

- **default ip igmp compatibility-mode**
- **ip igmp compatibility-mode**
- **no ip igmp compatibility-mode**

Default

The default value is disabled, which means IGMPv3 is not compatible with IGMPv1 or IGMPv2.

Command Mode

GigabitEthernet Interface Configuration

ip igmp dynamic-downgrade-version (for a port)

Configures the version of Internet Group Management Protocol (IGMP) to handle older query messages if the system downgrades. If the system downgrades, the host with IGMPv3 only capability does not work. If you do not configure the system to downgrade the version of IGMP, the system logs a warning.

Syntax

- **default ip igmp dynamic-downgrade-version**
- **ip igmp dynamic-downgrade-version**
- **no ip igmp dynamic-downgrade-version**

Default

Enabled

Command Mode

GigabitEthernet Interface Configuration

ip igmp igmpv3-explicit-host-tracking (for an Ethernet port)

Track all the source and group members. You must enable explicit-host-tracking to use fast leave for IGMPv3.

Syntax

- **default ip igmp igmpv3-explicit-host-tracking**
- **ip igmp igmpv3-explicit-host-tracking**
- **no ip igmp igmpv3-explicit-host-tracking**

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

ip igmp immediate-leave (for an Ethernet port)

Enable fast (immediate) leave mode to specify if a port receives a leave message from a member of a group.

Syntax

- **default ip igmp immediate-leave**
- **ip igmp immediate-leave**
- **no ip igmp immediate-leave**

Default

None

Command Mode

GigabitEthernet Interface Configuration

ip igmp last-member-query-interval (for a port)

Configures the maximum response time (in tenths of a second) inserted into group-specific queries sent in response to leave group messages.

Syntax

- **default ip igmp last-member-query-interval**

- **ip igmp last-member-query-interval <0-255>**

Command Parameters

<0-255>

Specifies the maximum response time (in tenths of a second) inserted into group-specific queries sent in response to leave group messages. This value is also the time between group-specific query messages. Decreasing the value reduces the time to detect the loss of the last member of a group. Configure this value between 3 to 10 (equal to 0.3 to 1.0 seconds). The default is 10 tenths of a second.

Note
You cannot configure this value for IGMPv1.

Default

The default is 10 tenths of a second.

Command Mode

GigabitEthernet Interface Configuration

ip igmp port (for a port)

Configure Internet Group Management Protocol (IGMP) for a particular port.

Syntax

- **default ip igmp port {slot/port[/sub-port][-slot/port[/sub-port]] [,...][slot/all][all]}**
- **ip igmp port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **no ip igmp port {slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]}**

Default

None

Command Mode

GigabitEthernet Interface Configuration

ip igmp query-interval (for a port)

Configure the frequency (in seconds) at which the VLAN transmits host query packets.

Syntax

- **default ip igmp query-interval**
- **ip igmp query-interval <1-65535>**

Command Parameters

<1-65535>

Configures the frequency (in seconds) at which the VLAN transmits host query packets. The default is 125 seconds.

Default

The default is 125 seconds.

Command Mode

GigabitEthernet Interface Configuration

ip igmp query-max-response (for a port)

Configure the maximum response time advertised in IGMPv2 general queries on an interface.

Syntax

- **default ip igmp query-max-response**
- **ip igmp query-max-response <0-255>**

Command Parameters

<0-255>

Configures the maximum response time (in tenths of a second) advertised in IGMPv2 general queries on this interface. Smaller values enables a router to prune groups faster.



Important

You must configure this value lower than the query-interval. The default is 100 tenths of a second (equal to 10 seconds).



Note

You cannot configure this value for IGMPv1.

Default

The default is 100 tenths of a second (equal to 10 seconds).

Command Mode

GigabitEthernet Interface Configuration

ip igmp robust-value (for a port)

Configure the expected packet loss of a network.

Syntax

- **default ip igmp robust-value**
- **ip igmp robust-value <2-255>**

Command Parameters

<2-255>

Configures the expected packet loss of a network. Increase the value if you expect the network to experience packet loss. The default is 2 seconds.

Default

The default is 2 seconds.

Command Mode

GigabitEthernet Interface Configuration

ip igmp router-alert (for a port)

Configure the router to ignore Internet Group Management Protocol (IGMP) packets.

Syntax

- **default ip igmp router-alert**
- **ip igmp router-alert**
- **no ip igmp router-alert**

Default

Disabled

Command Mode

VLAN Interface Configuration

Usuage Guidelines

To maximize network performance, configure this parameter according to the version of IGMP currently in use:

- IGMPv1 - Disable
- IGMPv2 - Enable
- IGMPv3 - Enable

ip igmp stream-limit (for a port)

Configure multicast stream limitation on an Ethernet port to limit the number of concurrent multicast streams on the port.

Syntax

- **default ip igmp stream-limit**
- **default ip igmp stream-limit stream-limit-max-streams**
- **ip igmp stream-limit**
- **ip igmp stream-limit stream-limit-max-streams <0-65535>**
- **no ip igmp stream-limit**

Command Parameters

stream-limit

Enables the stream limit on the specified Ethernet port.

stream-limit-max-streams <0-65535>

Sets the maximum number of streams allowed on an interface. The value ranges from 0 to 65535.

Default

None

Command Mode

GigabitEthernet Interface Configuration

ip igmp upnp-filter (for a port)

Configure Universal Plug and Play (uPnP) Filtering on an IGMP-enabled interface to drop all incoming multicast packets destined for any multicast group residing in a specific range.

Syntax

- **default ip igmp upnp-filter**
- **ip igmp upnp-filter [ip <A.B.C.D/X>]**
- **no ip igmp upnp-filter**

Command Parameters

ip <A.B.C.D/X>

Specifies the multicast destination IP address range to be filtered. The default multicast group address is 239.255.255.250/32.

Default

The default is disabled.

Command Mode

GigabitEthernet

ip igmp version (for a port)

Configure the version of Internet Group Management Protocol (IGMP) on the interface.

Syntax

- **default ip igmp version**
- **ip igmp version <1-3>**

Command Parameters

<1-3>

Specifies the version of IGMP that you want to configure on this interface. For IGMP to function correctly, all routers on a LAN must use the same version. The default is 2 (IGMPv2).

Default

The default is 2 (IGMPv2).

Command Mode

VLAN Interface Configuration

ip interface enable (for a port)

Enables or disables an IPv4 interface on a brouter port.

Syntax

- **default ip interface enable**
- **ip interface enable**
- **no ip interface enable**

Default

The default is enabled.

Command Mode

GigabitEthernet Interface Configuration

ip ipsec enable (for a port)

Enable Internet Protocol Security (IPsec) for IPv4 on a port.

Syntax

- **default ip ipsec enable**
- **ip ipsec enable**
- **no ip ipsec enable**

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

ip ipsec policy (for a port)

Link an Internet Protocol Security (IPsec) IPv4 policy to an interface.

Syntax

- **default ip ipsec policy WORD<1-32>**
- **ip ipsec policy WORD<1-32>**
- **ip ipsec policy WORD<1-32> dir both**

- **ip ipsec policy WORD<1-32> dir in**
- **ip ipsec policy WORD<1-32> dir out**
- **no ip ipsec policy WORD<1-32> dir both**
- **no ip ipsec policy WORD<1-32> dir in**
- **no ip ipsec policy WORD<1-32> dir out**

Command Parameters

dir <both|in|out>

Specifies the direction to which IPsec applies. Both specifies both ingress and egress traffic, in specifies ingress traffic, and out specifies egress traffic. By default, the direction is both.

WORD<1-32>

Specifies the IPsec policy name.

Default

None

Command Mode

GigabitEthernet Interface Configuration

ip irdp address (for a port)

Configure Internet Control Message Protocol (ICMP) Router Discovery to enable hosts attached to multicast or broadcast networks to discover the IP addresses of their neighboring routers.

Syntax

- **default ip irdp**
- **default ip irdp address**
- **ip irdp address {A.B.C.D}**

Command Parameters

address <A.B.C.D>

Specifies the IP destination address use for broadcast or multicast router advertisements sent from the interface. The address is the all-systems multicast address, 224.0.0.1, or the limited-broadcast address, 255.255.255.255.

Default

The default address is 255.255.255.255.

Command Mode

GigabitEthernet Interface Configuration

ip irdp holdtime (for a port)

Configure the lifetime for advertisements.

Syntax

- **default ip irdp holdtime**
- **ip irdp holdtime <4-9000>**

Command Parameters

<4-4000>

Specifies the lifetime.

Default

The default is 1800.

Command Mode

GigabitEthernet Interface Configuration

ip irdp maxadvertinterval (for a port)

Specify the maximum time (in seconds) that elapses between unsolicited broadcast or multicast router advertisement transmissions from the router interface.

Syntax

- **default ip irdp maxadvertinterval**
- **ip irdp maxadvertinterval <4-1800>**

Command Parameters

<4-1800>

Specifies the maximum time in seconds.

Default

The default is 600 seconds.

Command Mode

GigabitEthernet Interface Configuration

ip irdp minadvertinterval (for a port)

Specify the minimum time (in seconds) that elapses between unsolicited broadcast or multicast router advertisement transmissions from the interface. The range is 3 seconds to maxadvertinterval.

Syntax

- **default ip irdp minadvertinterval**
- **ip irdp minadvertinterval <3-1800>**

Command Parameters

<3-1800>

Specifies the minimum time in seconds.

Default

The default is 450 seconds.

Command Mode

GigabitEthernet Interface Configuration

ip irdp multicast (for a port)

Specify if multicast advertisements are sent.

Syntax

- **default ip irdp multicast**
- **ip irdp multicast**
- **no ip irdp multicast**

Default

The default is enabled (true).

Command Mode

GigabitEthernet Interface Configuration

ip irdp preference (for a port)

Specify the preference (a higher number indicates more preferred) of the address as a default router address relative to other router addresses on the same subnet.

Syntax

- **default ip irdp preference**
- **ip irdp preference <-2147483648-2147483647>**

Command Parameters

<-2147483648-2147483647>

Specifies the preference value.

Default

The default is 0.

Command Mode

GigabitEthernet Interface Configuration

ip mroute (for a port)

Limit the number of multicast streams to protect a CPU from multicast data packet bursts generated by malicious applications.

Syntax

- **default ip mroute max-allowed-streams**
- **default ip mroute max-allowed-streams-timer-check**
- **default ip mroute port {slot/port[/sub-port][-slot/port[/sub-port]] [,...][slot/all][all]}**
- **default ip mroute stream-limit**
- **ip mroute max-allowed-streams <1-32768>**
- **ip mroute max-allowed-streams-timer-check <1-3600>**
- **ip mroute port {slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]} max-allowed-streams <1-32768>**
- **ip mroute port {slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]} max-allowed-streams-timer-check <1-3600>**

- **ip mroute port {slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]} stream-limit**
- **ip mroute stream-limit**
- **no ip mroute port {slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]}**
- **no ip mroute stream-limit**

Command Parameters

max-allowed-streams <1-32768>

Configures the maximum number of streams on the specified port. The port is shut down if the number of streams exceeds this limit. The value is a number between 1-32768. The default value is 1984 streams.

To set this option to the default value, use the default operator with the command.

max-allowed-streams-timer-check <1-3600>

Configures the sampling interval, which is used to check if the number of ingress multicast streams to the CPU is under a configured limit or if the port needs to shut down. The range is between 1-3600. The default value is 10 seconds.

To set this option to the default value, use the default operator with the command.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

stream-limit

Enables stream limit on a particular interface.

Default

None

Command Mode

GigabitEthernet Interface Configuration

ip ospf advertise-when-down enable (for a port)

Enable or disable AdvertiseWhenDown. If enabled, the network on this interface is advertised as up, even if the port is down. When you configure a port with no link and enable advertise-when-down, the route is not advertised until the port is active. Then the route is advertised even when the link is down. To disable advertising based on link status, this parameter must be disabled.

Syntax

- **default ip ospf advertise-when-down enable**
- **ip ospf advertise-when-down enable**
- **ip ospf port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} advertise-when-down enable**
- **no ip ospf advertise-when-down enable**

Command Parameters

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

ip ospf area (for a port)

Configure OSPF parameters on a port to control how OSPF behaves.

Syntax

- **default ip ospf area**
- **ip ospf area {A.B.C.D}**
- **ip ospf port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} area {A.B.C.D}**
- **no ip ospf area**

Command Parameters

<A.B.C.D>

Configures the OSPF identification number for the area, typically formatted as an IP address.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

GigabitEthernet Interface Configuration

ip ospf authentication-key (for a port)

Configure the eight-character simple password authentication key for the port.

Syntax

- **default ip ospf authentication-type**
- **ip ospf authentication-key WORD<0-8>**
- **ip ospf port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} authentication-key WORD<0-8>**

Command Parameters

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all] [all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

WORD<0-8>

Specifies the authentication key.

Default

None

Command Mode

GigabitEthernet Interface Configuration

ip ospf authentication-type (for a port)

Configure the OSPF authentication type for the port. If you choose simple, you must configure the password with the ip ospf authentiation-key WORD<0-8> command. If you choose MD5, you must configure the MD5 key with the ip ospf message-digest-key <1-255> md5 WORD<0-16> command.

Syntax

- **ip ospf authentication-type message-digest**
- **ip ospf authentication-type none**
- **ip ospf authentication-type sha-1**
- **ip ospf authentication-type sha-2**
- **ip ospf authentication-type simple**
- **ip ospf port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} authentication-type message-digest**
- **ip ospf port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} authentication-type none**
- **ip ospf port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} authentication-type sha-1**

- **ip ospf port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} authentication-type sha-2**
- **ip ospf port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} authentication-type simple**
- **no ip ospf authentication-type**

Command Parameters

message-digest

Configures the authentication-type to message-digest.

If you choose MD5, you must configure the MD5 key with the ip ospf message-digest-key <1-255> md5 WORD<0-16> command. Message Digest 5 (MD5) provides standards-based authentication using 128-bit encryption.

If you use MD5, each OSPF packet has a message digest appended to it. The digest must match between sending and receiving routers, or the packet is discarded.

none

Configures the authentication-type to none.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

sha-1

Configures the authentication-type to secure hash algorithm 1 (SHA-1). SHA-1 provides standards-based authentication using 128-bit encryption.

sha-2

sha-2—Specifies SHA-2, which offers the hash function SHA-256.

Note

The parameter sha-2, an update of SHA-1, can offer six hash functions that include SHA-224, SHA-256, SHA-384, SHA-512, SHA-512/224,SHA 512/256, with hash values that are 224, 256, 384, or 512 bits. However, the current release supports only SHA-256.

simple

Configures the authentication-type to use a simple-text password. Only routers that contain the same authentication ID in their LSA can communicate with each other. Using a simple-text password is not a best practice for security. If you choose simple, you must configure the password with the **ip ospf authentiation-key WORD<0-8>** command.

Default

None

Command Mode

GigabitEthernet Interface Configuration

ip ospf bfd

Enable Bidirectional Forwarding Detection (BFD) for an OSPF GigabitEthernet IPv4 interface.

Syntax

- **default ip ospf bfd**
- **ip ospf bfd**
- **ip ospf bfd disable**
- **no ip ospf bfd**

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

ip ospf cost (for a port)

Configure the OSPF cost associated with this interface and advertised in router link advertisements.

Syntax

- **default ip ospf cost**
- **ip ospf cost <0-65535>**
- **ip ospf port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} cost <0-65535>**

Command Parameters

<1-65535>

Specifies the cost range.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

The default is 0.

Command Mode

GigabitEthernet Interface Configuration

ip ospf dead-interval (for a port)

Configure the router OSPF dead interval-the number of seconds the OSPF neighbors of a switch must wait before assuming that the OSPF router is down. The value must be at least four times the Hello interval.

Syntax

- **default ip ospf dead-interval**
- **ip ospf dead-interval <0-2147483647>**
- **ip ospf port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} dead-interval <0-2147483647>**

Command Parameters

<0-2147483647>

Specifies the Dead interval in seconds. Dead Interval must be a multiple of Hello Interval.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

The default is 40.

Command Mode

GigabitEthernet Interface Configuration

ip ospf digest-key (for a port)

Configure the Digest algorithm key which can be of type MD5, SHA-1 or SHA-2. At most, you can configure two digest keys for an interface.

Syntax

- **default ip ospf digest-key <1-255>**
- **ip ospf digest-key <1-255> WORD<0-16>**
- **no ip ospf digest-key <1-255>**

Command Parameters

<1-255>

Specifies the ID for the digest key.

<WORD> <0-16>

Specifies an alphanumeric password of up to 16 bytes (string length 0 to 16).

Default

None

Command Mode

GigabitEthernet Interface Configuration

ip ospf enable (for a port)

Enable OSPF on the port.

Syntax

- **default ip ospf**
- **default ip ospf enable**
- **default ip ospf port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **ip ospf enable**
- **ip ospf port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} enable**
- **no ip ospf**
- **no ip ospf enable**
- **no ip ospf port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

ip ospf hello-interval (for a port)

Configure the OSPF Hello interval, which is the number of seconds between Hello packets sent on this interface.

Syntax

- **default ip ospf hello-interval**
- **ip ospf hello-interval <1-65535>**
- **ip ospf port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} hello-interval <1-65535>**

Command Parameters

<1-65535>

Specifies the Hello interval range in seconds. Dead Interval must be a multiple of Hello Interval.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

The default is 10.

Command Mode

GigabitEthernet Interface Configuration

ip ospf mtu-ignore enable (for a port)

Enable maximum transmission unit (MTU) ignore. To allow the switch to accept OSPF database description (DBD) packets with a different MTU size, enable mtu-ignore. Incoming OSPF DBD packets are dropped if their MTU is greater than 1500 bytes.

Syntax

- **default ip ospf mtu-ignore enable**
- **ip ospf mtu-ignore enable**
- **ip ospf port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} mtu-ignore enable**
- **no ip ospf mtu-ignore enable**

Command Parameters

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

GigabitEthernet Interface Configuration

ip ospf network (for a port)

Specify the type of OSPF interface.

Syntax

- **default ip ospf network**
- **ip ospf network {broadcast | nbma | passive | p2p}**
- **ip ospf port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} network {broadcast | nbma | passive | p2p}**

Command Parameters

<broadcast|nbma|passive|p2p>

Specifies the interface type.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)

- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

GigabitEthernet Interface Configuration

ip ospf poll-interval (for a port)

Configure the OSPF poll interval in seconds.

Syntax

- **default ip ospf poll-interval**
- **ip ospf poll-interval <0-2147483647>**
- **ip ospf port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} poll-interval <0-2147483647>**

Command Parameters

<0-2147483647>

Specifies the poll interval range in seconds.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

The default is 120.

Command Mode

GigabitEthernet Interface Configuration

ip ospf primary-digest-key (for a port)

Changes the primary key used to encrypt outgoing packets. <1-255> is the ID for the new digest key.

Syntax

- **default ip ospf primary-digest-key**
- **ip ospf port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} primary-md5-key <1-255>**
- **ip ospf primary-digest-key <1-255>**

Command Parameters

<1-255>

Specifies the primay md5 key range.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

GigabitEthernet Interface Configuration

ip ospf priority (for a port)

Configure the OSPF priority for the port during the election process for the designated router. The port with the highest priority number is the best candidate for the designated router. If you configure the priority to 0, the port cannot become either the designated router or a backup designated router.

Syntax

- **default ip ospf priority**
- **ip ospf port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} priority <0-255>**
- **ip ospf priority <0-255>**

Command Parameters

<0-255>

Specifies the priority range.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

The default is 1.

Command Mode

GigabitEthernet Interface Configuration

ip ospf retransmit-interval (for a port)

Configure the retransmit interval for the virtual interface, the number of seconds between link-state advertisement retransmissions.

Syntax

- **default ip ospf retransmit-interval**
- **ip ospf port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} retransmit-interval <0-3600>**
- **ip ospf retransmit-interval <0-3600>**

Command Parameters

<0-3600>

Specifies the retransmit interval range in seconds.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

GigabitEthernet Interface Configuration

ip ospf transit-delay (for a port)

Configure the transit delay for the virtual interface, which is the estimated number of seconds required to transmit a link-state update over the interface.

Syntax

- **default ip ospf transit-delay**
- **ip ospf port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} transit-delay <0-3600>**
- **ip ospf transit-delay <0-3600>**

Command Parameters

<0-3600>

Specifies the transit delay range.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

GigabitEthernet Interface Configuration

ip pim (for a port)

Enable PIM and configure to perform multicasting operations.

Syntax

- **default ip pim bsr-candidate preference <0-255>**
- **default ip pim enable**
- **default ip pim hello-interval**
- **default ip pim interface-type**
- **default ip pim join-prune-interval**
- **ip pim active**
- **ip pim bsr-candidate preference <0-255>**
- **ip pim enable**
- **ip pim hello-interval <0-18724>**
- **ip pim interface-type [active | passive]**
- **ip pim join-prune-interval <1-18724>**
- **ip pim passive**
- **no ip pim bsr-candidate**
- **no ip pim enable**
- **no ip pim fast-joinprune**

Command Parameters

active

Enables PIM and sets interface type to active.

bsr-candidate <preference>

Enables BSR candidate on an interface.

enable

Configure PIM for each interface to enable the interface to perform multicasting operations.

hello-interval <0-18724>

Specifies the query interval in seconds.

hello-interval <0-18724>

Specify how long to wait (in seconds) before the PIM switch sends out the next hello message to neighboring switches.

interface-type [active | passive]

Specifies the pim interface-type on a interface.

join-prune-interval <1-18724>

Specify how long to wait (in seconds) before the PIM router sends out the next join/prune message to its upstream neighbors.

passive

Enable PIM and configure the interface type to passive simultaneously. By default, an enabled interface is active.

Default

None

Command Mode

GigabitEthernet Interface Configuration

ip pim bsr-candidate preference (for a port)

Configure additional routers as candidate BSRs (C-BSR) to provide backup protection in the event that the primary BSR fails.

Syntax

- **default ip pim bsr-candidate**
- **ip pim bsr-candidate preference <0-255>**
- **no ip pim bsr-candidate**

Command Parameters

preference <0-255>

Enables the C-BSR on this interface and configures its preference value, from 0-255, to become a BootStrap Router (BSR). The C-BSR with the highest BSR preference and address is the preferred BSR.

Default

None

Command Mode

GigabitEthernet Interface Configuration

ip pim hello-interval (for a port)

Configure the hello-interval on a interface.

Syntax

- **default ip pim hello-interval**
- **ip pim hello-interval <0-18724>**

Command Parameters

<0-18724>

Specifies the duration in seconds before the PIM router sends out the next hello message to neighboring switches.

Default

The default is 30 seconds.

Command Mode

GigabitEthernet Interface Configuration

ip pim interface-type (for a port)

Specifies whether the selected interface is active or passive. You can change the state of a PIM interface after you create the interface but only if you disable PIM on the interface. Use this feature when a high number of PIM interfaces exist and connect to end users, not to other switches.

- An active interface accepts PIM control transmitted and received traffic.
- A passive interface prevents PIM control traffic from transmitting or receiving, thereby reducing the load on a system.

Syntax

- **default ip pim interface-type**
- **ip pim interface-type active**
- **ip pim interface-type passive**

Command Parameters

<active|passive>

Specifies the interface type.

Default

The default is active.

Command Mode

GigabitEthernet Interface Configuration

ip pim join-prune-interval (for a port)

Configure the frequency at which pim join/prune messages are sent

Syntax

- **default ip pim join-prune-interval**
- **ip pim join-prune-interval <1-18724>**

Command Parameters

<1-18724>

Specifies the duration in seconds before the PIM router sends out the next join or prune message to its upstream neighbors.

Default

The default is 60 seconds.

Command Mode

GigabitEthernet Interface Configuration

ip rip advertise-when-down enable (for a port)

Enable or disable AdvertiseWhenDown. If enabled, the network on this interface is advertised as up, even if the port is down. The default is disabled.

When you configure a port with no link and enable advertise-when-down, it does not advertise the route until the port is active. Then the route is advertised even when the link is down.

To disable advertising based on link status, this parameter must be disabled.

Syntax

- **default ip rip advertise-when-down enable**
- **ip rip advertise-when-down enable**
- **no ip rip advertise-when-down enable**

Command Parameters

<enable|disable>

Enables or disables AdvertiseWhenDown. If enabled, the network on this interface is advertised as up, even if the port is down. The default is disabled.

When you configure a port with no link and enable advertise-when-down, it does not advertise the route until the port is active. Then the route is advertised even when the link is down.

To disable advertising based on link status, this parameter must be disabled.

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

ip rip auto-aggregation (for a port)

Enable or disable automatic route aggregation on the port. When enabled, the router switch automatically aggregates routes to their natural mask when they are advertised on an interface in a different class network. The default is disabled.

Syntax

- **default ip rip auto-aggregation enable**
- **ip rip auto-aggregation enable**
- **no ip rip auto-aggregation enable**

Command Parameters

enable

Enables or disables automatic route aggregation on the port. When enabled, the router switch automatically aggregates routes to their natural mask when they are advertised on an interface in a different class network. The default is disabled.

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

ip rip cost (for a port)

Configure the RIP cost for this port (link).

Syntax

- **default ip rip cost**
- **ip rip cost <1-15>**

Command Parameters

<1-15>

Configures the RIP cost for this port (link).

Default

None

Command Mode

GigabitEthernet Interface Configuration

ip rip default-listen (for a port)

Enable default listen: the switch accepts the default route learned through RIP on this interface. The default is disabled.

Syntax

- **default ip rip default-listen enable**
- **ip rip default-listen enable**
- **no ip rip default-listen enable**

Command Parameters

enable

Enables DefaultListen: the switch accepts the default route learned through RIP on this interface. The default is disabled.

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

ip rip default-supply enable (for a port)

Enable default supply. If enabled, a default route must be advertised from this interface.

The default route is advertised only if it exists in the routing table. The default route will not be advertised on RIP interfaces by default. You need to redistribute the default route and then configure the default-supply at the interface for the default route to be advertised to the neighbor.

Syntax

- **default ip rip default-supply enable**
- **ip rip default-supply enable**
- **no ip rip default-supply enable**

Command Parameters

enable

Enables DefaultSupply. If enabled, a default route must be advertised from this interface. The default is false. The default route is advertised only if it exists in the routing table.

Default

The default is false.

Command Mode

GigabitEthernet Interface Configuration

ip rip enable (for a port)

Enable RIP routing on the interface.

Syntax

- **default ip rip enable**
- **ip rip enable**
- **no ip rip enable**

Command Parameters

enable

Enables RIP routing on the interface.

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

ip rip holddown (for a port)

Configure the RIP holddown timer value, the length of time (in seconds) that RIP continues to advertise a network after determining that it is unreachable. The default is 120.

Syntax

- **default ip rip holddown**
- **ip rip holddown <0-360>**

Command Parameters

<0-360>

Configures the RIP holddown timer value, the length of time (in seconds) that RIP continues to advertise a network after determining that it is unreachable. The default is 120.

Default

The default is 120.

Command Mode

GigabitEthernet Interface Configuration

ip rip in-policy (for a port)

Configures the rip in-policy on specific interface.

Syntax

- **default ip rip in-policy**
- **ip rip in-policy WORD<0-64>**

Command Parameters

WORD<0-64>

Configures the policy name for inbound filtering on this RIP interface. This policy determines whether to learn a route on this interface and specifies the parameters of the route when RIP adds it to the routing table.

Default

None

Command Mode

GigabitEthernet Interface Configuration

ip rip listen (for a port)

If enabled, the switch listens for a default route without listening for all routes. Specify that the routing switch learns RIP routes through this interface. The default is enable.

Syntax

- **default ip rip listen enable**
- **ip rip listen enable**
- **no ip rip listen enable**

Command Parameters

enable

If enabled, the switch listens for a default route without listening for all routes. Specifies that the routing switch learns RIP routes through this interface. The default is enable.

Default

The default is enabled.

Command Mode

GigabitEthernet Interface Configuration

ip rip out-policy (for a port)

Configure the port RIP out-policy name for outbound filtering on this RIP interface. This policy determines whether to advertise a route from the routing table on this interface. This policy also specifies the parameters of the advertisement. Policy name is a string of length 0 to 64 characters.

Syntax

- **default ip rip out-policy**
- **ip rip out-policy WORD<0-64>**

Command Parameters

WORD<0-64>

Configures the port RIP out-policy name for outbound filtering on this RIP interface. This policy determines whether to advertise a route from the routing table on this interface. This policy also specifies the parameters of the advertisement. Policy name is a string of length 0 to 64 characters.

Default

None

Command Mode

GigabitEthernet Interface Configuration

ip rip poison enable (for a port)

Enable Poison Reverse. If Poison Reverse is enabled, the RIP updates sent to a neighbor from which a route is learned are poisoned with a metric of 16. Therefore, the receiver neighbor ignores this route because the metric 16 indicates infinite hops in the network.

If you disable Poison Reverse (no poison enable), Split Horizon is enabled. By default, Split Horizon is enabled. If Split Horizon is enabled, IP routes learned from an immediate neighbor are not advertised back to the neighbor.

These mechanisms prevent routing loops.

Syntax

- **default ip rip poison enable**

- **ip rip poison enable**
- **no ip rip poison enable**

Command Parameters

enable

Enables Poison Reverse.

- If Poison Reverse is enabled, the RIP updates sent to a neighbor from which a route is learned are poisoned with a metric of 16. Therefore, the receiver neighbor ignores this route because the metric 16 indicates infinite hops in the network.
- If you disable Poison Reverse (no poison enable), Split Horizon is enabled. By default, Split Horizon is enabled. If Split Horizon is enabled, IP routes learned from an immediate neighbor are not advertised back to the neighbor.

These mechanisms prevent routing loops.

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

ip rip port

Configure RIP for a port.

Syntax

- **default ip rip port {slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]}**
- **ip rip port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/ all][all]}**
- **no ip rip port {slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]}**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)

- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

GigabitEthernet Interface Configuration

ip rip receive version (for a port)

Indicate which RIP update version is accepted on this interface. The default is rip1orrip2.

Syntax

- **default ip rip receive version**
- **ip rip receive version { rip1 | rip2 | rip1orrip2 }**

Command Parameters

<rip1|rip2|rip1orrip2>

Indicates which RIP update version is accepted on this interface. The default is rip1orrip2.

Default

The default is rip1orrip 2.

Command Mode

GigabitEthernet Interface Configuration

ip rip send (for a port)

Indicate which RIP update version the router sends from this interface. ripVersion1 implies sending RIP updates that comply with RFC 1058. rip1Compatible implies broadcasting RIP2 updates using RFC 1058 route subassumption rules. The default is rip1Compatible.

Syntax

- **default ip rip send version**

- **ip rip send version { notsend | rip1 | rip1comp | rip2 }**

Command Parameters

<notsend|rip1|rip2|rip1comp|rip2>

Indicates which RIP update version the router sends from this interface. ripVersion1 implies sending RIP updates that comply with RFC 1058. rip1Compatible implies broadcasting RIP2 updates using RFC 1058 route subassumption rules. The default is rip1Compatible

Default

The default is rip1Compatible.

Command Mode

GigabitEthernet Interface Configuration

ip rip supply (for a port)

Specify that the switch advertises RIP routes through the port. The default is enable.

Syntax

- **default ip rip supply enable**
- **ip rip supply enable**
- **no ip rip supply enable**

Command Parameters

<enable|disable>

Specifies that the switch advertises RIP routes through the port. The default is enable.

Default

The default is enabled.

Command Mode

GigabitEthernet Interface Configuration

ip rip timeout (for a port)

Configure the RIP timeout interval in seconds.

Syntax

- **default ip rip timeout**
- **ip rip timeout <15-259200>**

Command Parameters

<15-259200>

Configures the RIP timeout interval in seconds.

Default

None

Command Mode

GigabitEthernet Interface Configuration

ip rip triggered (for a port)

Enable automatic triggered updates for RIP.

Syntax

- **default ip rip triggered enable**
- **ip rip triggered enable**
- **no ip rip triggered enable**

Command Parameters

enable

Enables automatic triggered updates for RIP.

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

ip rvs-path-chk

Configure unicast reverse path forwarding on a port (IPV4).

Syntax

- **default ip rvs-path-chk**
- **default ip rvs-path-chk mode**
- **ip rvs-path-chk**
- **ip rvs-path-chk mode exist-only**
- **ip rvs-path-chk mode strict**
- **no ip rvs-path-chk**

Command Parameters

mode {strict|exist-only}

Specifies the mode for Unicast Reverse Path Forwarding (uRPF).

- In strict mode, uRPF checks whether the source IP address of the incoming packet exists in the FIB. If the incoming interface is not the best reverse path, the packet check fails and uRPF drops the packet.
- In exist-only mode, uRPF checks whether the source IP address of the incoming packet exists in the FIB. The packet is dropped only if the source address is not reachable via any interface on that router.

Default

None

Command Mode

GigabitEthernet Interface Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

ip source verify

Configures IP Source Guard (IPSG) on a port, for IPv4 addresses. When you enable IPSG on the port, filters are automatically installed for the IPv4 addresses that are already learned on that interface.

Syntax

- **default ip source verify**
- **ip source verify enable**
- **no ip source verify**

Default

IPSG for IPv4 addresses is disabled by default.

Command Mode

GigabitEthernet Interface Configuration

ip spb-multicast enable (for a port)

Enables Layer 3 VSN IP multicast over Fabric Connect.

Syntax

- **default ip spb-multicast enable**
- **ip spb-multicast enable**
- **no ip spb-multicast enable**

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

ip spb-pim-gw enable (for a port)

Enable SPB-PIM Gateway on a VLAN interface.

Syntax

- **default p spb-pim-gw enable**
- **ip spb-pim-gw enable**
- **no ip spb-pim-gw enable**

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

ip spb-pim-gw hello-interval (for a port)

Configures the SPB-PIM Gateway VLAN HELLO interval.

Syntax

- **default ip spb-pim-gw hello-interval <0-18724>**
- **ip spb-pim-gw hello-interval <0-18724>**
- **no ip spb-pim-gw hello-interval <0-18724>**

Command Parameters

<0-18724>

Specifies the HELLO interval in seconds. The default value is 30 seconds.

Default

The default value is 30 seconds.

Command Mode

GigabitEthernet Interface Configuration

ip spb-pim-gw ip join-prune-interval (for a port)

Configures the SPB-PIM Gateway VLAN JOIN PRUNE interval.

Syntax

- **default ip spb-pim-gw ip join-prune-interval <1-18724>**
- **ip spb-pim-gw ip join-prune-interval <1-18724>**
- **no ip spb-pim-gw ip join-prune-interval <1-18724>**

Command Parameters

<1-18724>

Specifies the JOIN PRUNE interval in seconds. The default value is 60 seconds.

Default

The default value is 60 seconds.

Command Mode

GigabitEthernet Interface Configuration

ip vrrp <1-255> (for a port)

Configures Virtual Router Redundancy Protocol (VRRP) on the interface.

Syntax

- **default ip vrrp <1-255> [enable]**
- **ip vrrp <1-255> enable**
- **no ip vrrp <1-255> [enable]**

Command Parameters

<1-255>

Specifies a unique integer value that represents the virtual router ID. The virtual router acts as the default router for one or more assigned addresses.

enable

Enables Virtual Router Redundancy Protocol (VRRP) on the interface.

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

ip vrrp <1-255> action

Configures the action of the routing interface.

Syntax

- **default ip vrrp <1-255> action**
- **ip vrrp <1-255> action {none | preempt}**

Command Parameters

{none|preempt}

Specifies the action of the routing interface:

- none—do not override the holddown timer
- preempt—override the holddown timer

Default

The default is none.

Command Mode

GigabitEthernet Interface Configuration

Usage Guidelines

This command applies only if the holddown timer is active.

ip vrrp <1-255> adver-int

Configures the time interval between sending Virtual Router Redundancy Protocol (VRRP) advertisement messages.

Syntax

- **default ip vrrp <1-255> adver-int**
- **ip vrrp <1-255> adver-int <1-255>**

Command Parameters

<1-255>

Specifies a unique integer value that represents the virtual router ID. The virtual router acts as the default router for one or more assigned addresses.

<1-255>

Specifies the time interval (in seconds) between sending Virtual Router Redundancy Protocol (VRRP) advertisement messages. This value must be the same on all the participating routers.

Default

The default is 1 second.

Command Mode

GigabitEthernet Interface Configuration

ip vrrp <1-255> backup-master enable

Enables the Virtual Router Redundancy Protocol (VRRP) backup master.

Syntax

- **default ip vrrp <1-255> backup-master enable**
- **ip vrrp <1-255> backup-master enable**
- **no ip vrrp <1-255> backup-master enable**

Command Parameters

<1-255>

Specifies a unique integer value that represents the virtual router ID. The virtual router acts as the default router for one or more assigned addresses.

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

Usage Guidelines

This option is supported only on Split MultiLink Trunking (SMLT) ports.

Do not enable Backup Master if critical IP is enabled.

ip vrrp <1-255> critical-ip-addr

Configures the critical IP address for VRRP.

Syntax

- **default ip vrrp <1-255> critical-ip-addr**
- **ip vrrp <1-255> critical-ip-addr {A.B.C.D}**

Command Parameters

<1-255>

Specifies a unique integer value that represents the virtual router ID. The virtual router acts as the default router for one or more assigned addresses.

<A.B.C.D>

Specifies the critical IP address for VRRP. *A.B.C.D* is the IP address on the local router, which is configured so that a change in its state causes a role switch in the virtual router (for example, from master to backup in case the interface goes down).

Default

None

Command Mode

GigabitEthernet Interface Configuration

ip vrrp <1-255> critical-ip enable

Enables the critical IP address for VRRP.

Syntax

- **default ip vrrp <1-255> critical-ip enable**
- **ip vrrp <1-255> critical-ip enable**
- **no ip vrrp <1-255> critical-ip enable**

Command Parameters

<1-255>

Specifies a unique integer value that represents the virtual router ID. The virtual router acts as the default router for one or more assigned addresses.

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

Usage Guidelines

Do not enable critical IP if Backup Master is enabled.

ip vrrp <1-255> fast-adv enable

Enables the Fast Advertisement Interval.

Syntax

- **default ip vrrp <1-255> fast-adv enable**
- **ip vrrp <1-255> fast-adv enable**
- **no ip vrrp <1-255> fast-adv enable**

Command Parameters

<1-255>

Specifies a unique integer value that represents the virtual router ID. The virtual router acts as the default router for one or more assigned addresses.

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

ip vrrp <1-255> fast-adv-int

Configures the time interval between sending VRRP advertisement messages.

Syntax

- **default ip vrrp <1-255> fast-adv-int**
- **ip vrrp <1-255> fast-adv-int <200-1000>**

Command Parameters

<1-255>

Specifies a unique integer value that represents the virtual router ID. The virtual router acts as the default router for one or more assigned addresses.

<200-1000>

Specifies the time interval in milliseconds between sending VRRP advertisement messages. The range must be the same on all participating routers. You must enter values in multiples of 200 milliseconds.

Default

The default is 200.

Command Mode

GigabitEthernet Interface Configuration

ip vrrp <1-255> holddown-timer

Configures the time interval (in seconds) to wait before preempting the current VRRP primary router.

Syntax

- **default ip vrrp <1-255> holddown-timer**
- **ip vrrp <1-255> holddown-timer <0-21600>**

Command Parameters

<1-255>

Specifies a unique integer value that represents the virtual router ID. The virtual router acts as the default router for one or more assigned addresses.

<0-21600>

Specifies the time interval (in seconds) to wait before preempting the current VRRP primary router.

Default

The default is 0.

Command Mode

GigabitEthernet Interface Configuration

ip vrrp <1-255> preempt-mode enable

Enables preempt mode for vrrp (v3). If a new router is added to the network with its priority higher than the existing routers, then the new router becomes the master.

Syntax

- **default ip vrrp <1-255> preempt-mode**
- **ip vrrp <1-255> preempt-mode enable**
- **no ip vrrp <1-255> preempt-mode enable**

Command Parameters

<1-255>

Specifies a unique integer value that represents the virtual router ID. The virtual router acts as the default router for one or more assigned addresses.

Default

The default is enabled.

Command Mode

GigabitEthernet Interface Configuration

ip vrrp <1-255> priority

Configures the port Virtual Router Redundancy Protocol (VRRP) priority.

Syntax

- **default ip vrrp <1-255> priority**
- **ip vrrp <1-255> priority <1..254>**

Command Parameters

<1-255>

Specifies a unique integer value that represents the virtual router ID. The virtual router acts as the default router for one or more assigned addresses.

<1..254>

Specifies the priority value used by this VRRP router. The value 255 is reserved for the router that owns the IP addresses associated with the virtual router.

Default

The default is 100.

Command Mode

GigabitEthernet Interface Configuration

ip vrrp address (for a port)

Specify an address to associate with the virtual router.

Syntax

- **default ip vrrp address <1-255>**
- **default ip vrrp address <1-255> {A.B.C.D}**
- **ip vrrp address <1-255> {A.B.C.D}**
- **no ip vrrp address <1-255>**
- **no ip vrrp address <1-255> {A.B.C.D}**

Command Parameters

{A.B.C.D}

Specifies an address to associate with the virtual router.

<1-255>

Specifies the virtual router ID. The virtual router acts as the default router for one or more associated addresses.

Default

None

Command Mode

GigabitEthernet Interface Configuration

ip vrrp pseudo-header-checksum (for a port)

Configure the type of checksum computation, with Pseudo Header or without Pseudo Header.

Syntax

- **default ip vrrp pseudo-header-checksum**
- **ip vrrp pseudo-header-checksum**
- **no ip vrrp pseudo-header-checksum**

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

ip vrrp version

Configure VRRP version on an interface.

Syntax

- **default ip vrrp version**
- **ip vrrp version [2|3]**

Command Parameters

[2|3]

Configure VRRP version 2 or 3 on an interface.

Default

The default is version 2.

Command Mode

GigabitEthernet Interface Configuration

ipv6 bfd (for a port)

Enable and configure Bidirectional Forwarding Detection (BFD) on a port.

Syntax

- **default ipv6 bfd enable**
- **default ipv6 bfd interval**
- **default ipv6 bfd min-rx**
- **default ipv6 bfd multiplier**
- **default ipv6 bfd port**
- **ipv6 bfd enable**
- **ipv6 bfd interval**
- **ipv6 bfd min-rx**
- **ipv6 bfd multiplier**
- **ipv6 bfd port**
- **no ipv6 bfd**
- **no ipv6 bfd port**

Command Parameters

enable

Enable BFD on a port.

interval

Specifies the transmit interval in milliseconds. The default is 200 ms.

The minimum value for the transmit interval is 100 ms. You can configure a maximum of 4 BFD sessions with the minimum value for the transmit interval. You can configure the remaining BFD sessions with a transmit interval that is greater than or equal to the 200 ms default value.

min-rx

Specifies the receive interval in milliseconds. The default is 200 ms.

The minimum value for the receive interval is 100 ms. You can configure a maximum of 4 BFD sessions with the minimum value for the receive interval. You can configure the remaining BFD sessions with a receive interval that is greater than or equal to the 200 ms default value.

multiplier

Specifies the multiplier used to calculate the amount of time BFD waits before it declares a receive timeout. The default is 3.

If you configure the transmit interval or the receive interval as 100 ms, you must configure a value of 4 or greater for the multiplier.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all] [all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

Usage Guidelines

This command is available for demonstration purposes only. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

ipv6 dhcp-relay (for a port)

Configure Dynamic Host Configuration Protocol (DHCP) Relay on an interface. The command no ipv6 dhcp-relay disables DHCP on the interface; it does not delete the entry.

Syntax

- **default ipv6 dhcp-relay**
- **default ipv6 dhcp-relay fwd-path WORD<0-255>**
- **default ipv6 dhcp-relay max-hop**
- **default ipv6 dhcp-relay remote-id**
- **ipv6 dhcp-relay**
- **ipv6 dhcp-relay fwd-path WORD<0-255>**
- **ipv6 dhcp-relay fwd-path WORD<0-255> enable**
- **ipv6 dhcp-relay fwd-path WORD<0-255> vrid WORD<1-255>**
- **ipv6 dhcp-relay max-hop <1-32>**

- **ipv6 dhcp-relay remote-id**
- **no ipv6 dhcp-relay**
- **no ipv6 dhcp-relay fwd-path WORD<0-255>**
- **no ipv6 dhcp-relay fwd-path WORD<0-255> enable**
- **no ipv6 dhcp-relay remote-id**

Command Parameters

max-hop <1-32>

Configures the maximum number of hops before a BootP/DHCP packet is discarded. The default is 32.

remoteId

Enables the Remote ID. The default is disabled.

vrid WORD<1-255>

Specifies the ID of the virtual router and is an integer from 1-255.

WORD<0-255>

Creates a forwarding path to the Dynamic Host Configuration Protocol (DHCP) server with a mode and a state. WORD<0-255> is the IPv6 address of the server. The default IP address of the relay is the address of the interface. If the relay is a Virtual Router configured on this interface, you must set the vrid.

By default, the forwarding path is disabled.

Default

None

Command Mode

GigabitEthernet Interface Configuration

ipv6 fhs dhcp-guard

Enable device role verification attached to the port. By default, router is selected.

Syntax

- **default ipv6 fhs dhcp-guard attach-policy**
- **ipv6 fhs dhcp-guard attach-policy WORD<1-64>**
- **ipv6 fhs dhcp-guard device-role {client | server}**
- **no ipv6 fhs dhcp-guard attach-policy**

Command Parameters

attach-policy

Attach dhcp-guard policy to interface.

Client

Set device role as client.

device-role

Set dhcp-gurad device-role.

Server

Set device role as server.

WORD<1-64>

Specify the name of the DHCP guard policy to be attached or detached.

Default

None

Command Mode

GigabitEthernet Interface Configuration

ipv6 fhs nd-inspection enable (for a port)

Enables neighbor discovery (ND) inspection on a port or interface.

Syntax

- **default ipv6 fhs nd-inspection enable**
- **ipv6 fhs nd-inspection enable**
- **no ipv6 fhs nd-inspection enable**

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

ipv6 fhs ra-guard

Enables verification of the role of the device attached to the port.

Syntax

- **default ipv6 fhs ra-guard attach-policy**
- **ipv6 fhs ra-guard attach-policy WORD<1-64>**
- **ipv6 fhs ra-guard device-role {router|host}**
- **no ipv6 fhs ra-guard attach-policy**

Command Parameters

attach-policy

Attach RA Guard policy to interface.

device-role

Set RA Guarddevice role.

host

Set device role as host.

router

Set device role as router.

WORD<1-64>

Specifies the policy name.

Default

None

Command Mode

GigabitEthernet Interface Configuration

ipv6 forwarding (for a port)

Configure IPv6 forwarding. By default, IPv6 forwarding is globally disabled, which means you can only use local IPv6 connections, and traffic does not traverse an IPv6 network.

Syntax

- **default ipv6 forwarding**
- **ipv6 forwarding**
- **no ipv6 forwarding**

Default

By default, forwarding is enabled on an interface. You must enable it globally before the interface configuration takes effect.

Command Mode

GigabitEthernet Interface Configuration

ipv6 interface (for a port)

Creates an IPv6 interface.

Syntax

- **default ipv6 interface**
- **ipv6 interface**
- **no ipv6 interface**

Default

None

Command Mode

GigabitEthernet Interface Configuration

ipv6 interface address (for a port)

Configure the IPv6 address for a port.

Syntax

- **ipv6 interface address WORD<0-255>**
- **no ipv6 interface address**
- **no ipv6 interface address WORD<0-255>**

Command Parameters

WORD<0-255>

Assigns an IPv6 address to the port.

Default

None

Command Mode

GigabitEthernet Interface Configuration

ipv6 interface enable (for a port)

Enable IPv6 route advertisement on a port.

Syntax

- **default ipv6 interface enable**
- **ipv6 interface enable**
- **ipv6 interface enable vlan <1-4059>**
- **no ipv6 interface enable**

Command Parameters

vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

ipv6 interface hop-limit (for a port)

Configure the maximum number of hops before packets drop.

Syntax

- **default ipv6 interface hop-limit**
- **ipv6 interface hop-limit <1-255>**

Command Parameters

<1-255>

Configures the maximum hops.

Default

The default is 64 hops.

Command Mode

GigabitEthernet Interface Configuration

ipv6 interface link-local (for a port)

Create a link-local address for the port.

Syntax

- **ipv6 interface link-local WORD<0-19>**
- **ipv6 interface link-local WORD<0-19> address WORD<0-46>**
- **ipv6 interface link-local WORD<0-19> enable**
- **ipv6 interface link-local WORD<0-19> mac-offset <0-511>**
- **ipv6 interface link-local WORD<0-19> name WORD<0-255>**
- **ipv6 interface link-local WORD<0-19> vlan <1-4059>**

Command Parameters

address WORD<0-46>

Specifies the IPv6 address.

enable

Enables route advertisement.

mac-offset <0-511>

Specifies a number by which to offset the MAC address from the chassis MAC address. This ensures that each IP address has a different MAC address. If you omit this variable, a unique MAC offset is automatically generated.

name WORD<0-255>

Assigns a descriptive name. The network management system also configures this string.

vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

WORD<0-19>

Specifies the 64-bit interface ID used to calculate the actual link-local address.

Default

None

Command Mode

GigabitEthernet Interface Configuration

ipv6 interface mtu (for a port)

Configure the maximum transmission unit for the port.

Syntax

- **default ipv6 interface mtu**
- **ipv6 interface mtu <1280-9500>**

Command Parameters

<1280-9500>

Configures the maximum transmission unit for the interface: 1280-1500, 1850, or 9500.

Default

The default is 1500.

Command Mode

GigabitEthernet Interface Configuration

Usage Guidelines

The MTU value is not configurable on 5320 Series, 5420 Series, or 5720 Series.

ipv6 interface name (for a port)

Configure an interface description for the port.

Syntax

- **ipv6 interface name WORD<0-255>**

Command Parameters

WORD<0-255>

Assigns a descriptive name to the port.

Default

None

Command Mode

GigabitEthernet Interface Configuration

ipv6 interface reachable-time (for a port)

Configure the time a neighbor is considered reachable after receiving a reachability confirmation.

Syntax

- **default ipv6 interface reachable-time**
- **ipv6 interface reachable-time <1-3600000>**

Command Parameters

<1-3600000>

Configures the time, in milliseconds, a neighbor is considered reachable after receiving a reachability confirmation.

Default

The default is 30000.

Command Mode

GigabitEthernet Interface Configuration

ipv6 interface retransmit-timer (for a port)

Configure the time, between retransmissions of Neighbor Solicitation messages to a neighbor when resolving the address or when probing the reachability of a neighbor.

Syntax

- **default ipv6 interface retransmit-timer**
- **ipv6 interface retransmit-timer <1-4294967295>**

Command Parameters

<1-4294967295>

Configures the time, in milliseconds, between retransmissions of Neighbor Solicitation messages to a neighbor when resolving the address or when probing the reachability of a neighbor.

Default

The default is 1000.

Command Mode

GigabitEthernet Interface Configuration

ipv6 interface vlan (for a port)

Configure the interface as part of an IPv6 VLAN.

Syntax

- **ipv6 interface vlan <1-4059>**

Command Parameters

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

GigabitEthernet Interface Configuration

ipv6 ipsec enable (for a port)

Enable Internet Protocol Security (IPsec) for IPv6 on a port.

Syntax

- **default ipv6 ipsec enable**
- **ipv6 ipsec enable**

- **no ipv6 ipsec enable**

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

ipv6 ipsec policy (for a port)

Link an Internet Protocol Security (IPsec) IPv6 policy to an interface.

Syntax

- **default ipv6 ipsec policy WORD<1-32>**
- **ipv6 ipsec policy WORD<1-32>**
- **ipv6 ipsec policy WORD<1-32> dir both**
- **ipv6 ipsec policy WORD<1-32> dir in**
- **ipv6 ipsec policy WORD<1-32> dir out**
- **no ipv6 ipsec policy WORD<1-32> dir both**
- **no ipv6 ipsec policy WORD<1-32> dir in**
- **no ipv6 ipsec policy WORD<1-32> dir out**

Command Parameters

dir <both|in|out>

Specifies the direction to which IPsec applies. Both specifies both ingress and egress traffic, in specifies ingress traffic, and out specifies egress traffic. By default, the direction is both.

WORD<1-32>

Specifies the IPsec policy name.

Default

None

Command Mode

GigabitEthernet Interface Configuration

ipv6 mld last-listener-query-interval (for a port)

Configure the last listener query interval for the MLD

Syntax

- **default ipv6 mld last-member-query-interval**
- **ipv6 mld last-listener-query-interval <0-60>**
- **no ipv6 mld last-member-query-interval**

Command Parameters

<0-60>

Indicates the last listener query interval in seconds.

Default

The default is 1.

Command Mode

GigabitEthernet Interface Configuration

ipv6 mld query-interval (for a port)

Configure the query interval for the MLD interface

Syntax

- **default ipv6 mld query-interval**
- **ipv6 mld query-interval <1-65535>**
- **no ipv6 mld query-interval**

Command Parameters

<1-65535>

Indicates the frequency at which MLD host query packets transmit on this interface.

Default

The default is 125.

Command Mode

GigabitEthernet Interface Configuration

ipv6 mld query-max-response (for a port)

Configure the query maximum response time for mld interface

Syntax

- **default ipv6 mld query-max-response**
- **ipv6 mld query-max-response <0-60>**
- **no ipv6 mld query-max-response**

Command Parameters

<0–60>

Indicates the query maximum response interval time in seconds.

Default

The default is 10.

Command Mode

GigabitEthernet Interface Configuration

ipv6 mld robust-value (for a port)

Configure the MLD robustness

Syntax

- **default ipv6 mld robust-value**
- **ipv6 mld robust-value <2-255>**
- **no ipv6 mld robust-value**

Command Parameters

<2-255>

Specifies a numerical value for MLD snooping robustness.

Default

The default is 2.

Command Mode

GigabitEthernet Interface Configuration

ipv6 mld version (for a port)

Configure MLD version

Syntax

- **default ipv6 mld version**
- **ipv6 mld version <1-2>**
- **no ipv6 mld version**

Command Parameters

<1-2>

Indicates the version of MLD that runs on this interface.

Default

The default is 1.

Command Mode

GigabitEthernet Interface Configuration

ipv6 nd (for a port)

Configure the neighbor discovery parameters of the interface.

Syntax

- **default ipv6 nd**
- **default ipv6 nd hop-limit**
- **default ipv6 nd mtu**
- **default ipv6 nd reachable-time**
- **default ipv6 nd retransmit-timer**
- **ipv6 nd hop-limit <0-255>**
- **ipv6 nd mtu <0-9500>**
- **ipv6 nd reachable-time <0-3600000>**
- **ipv6 nd retransmit-timer <0-4294967295>**
- **no ipv6 nd**
- **no ipv6 nd hop-limit**

- **no ipv6 nd mtu**
- **no ipv6 nd reachable-time**
- **no ipv6 nd retransmit-timer**

Command Parameters

hop-limit <0-255>

Sets the neighbor discovery hop-limit value for the interface.

mtu <0-9500>

Sets router advertisement MTU size.

reachable-time <0-3600000>

Sets router advertisement reachable time.

retransmit-timer <0-4294967295>

Sets router advertisement retransmit timer.

Default

None

Command Mode

GigabitEthernet Interface Configuration

ipv6 nd dad-ns (for a port)

Configure the number of neighbor solicitation messages from duplicate address detection.

Syntax

- **default ipv6 nd dad-ns**
- **ipv6 nd dad-ns <0-600>**

Command Parameters

<0-600>

Configures the number of neighbor solicitation messages from duplicate address detection. A value of 0 disables duplicate address detection on the specified interface. A value of 1 configures a single transmission without follow-up transmissions.

Default

The default is 1.

Command Mode

GigabitEthernet Interface Configuration

ipv6 nd dns search-list (for a port)

Configure an IPv6 DNS Search List (DNSSL) entry for a port.

Syntax

- **default ipv6 nd dns search-list suppress**
- **ipv6 nd dns search-list [suppress] [WORD<0-111> [lifetime <12-4294967294> | <infinity>] [sequence <1-8>]]**
- **no ipv6 nd dns search-list [suppress] [WORD<0-111>]**

Command Parameters

lifetime *<12-4294967294> | infinity*

Specifies the time in which the DNS Search-List (DNSSL) IP addresses can be used for name resolution.

The default value is 1800.

sequence *<1-8>*

Specifies the order of priority in which the DNSSL entries are listed in Router Advertisement options.

Priority 1, listed first in the Router Advertisement option list is the highest priority while priority 8 is listed last and is the lowest priority.

The default is 8.

suppress

Suppresses DNSSL information in the Router Advertisement message.

WORD *<0-111>*

Specifies the IPv6 DNS domain name.

Default

The default is no DNSSL defined.

Command Mode

GigabitEthernet Interface

ipv6 nd dns server (for a port)

Configure an IPv6 Recursive DNS Server (RDNSS) entry for a port.

Syntax

- **default ipv6 nd dns server suppress**
- **ipv6 nd dns server [suppress] [WORD<0-255> [lifetime <12-4294967294> | infinity] [sequence <1-8>]]**
- **no ipv6 nd dns server [suppress] [WORD<0-255>]**

Command Parameters

lifetime *<12-4294967294> | infinity*

Specifies the time in which the Recursive DNS Server (RDNSS) IP addresses can be used for name resolution.

The default value is 1800.

sequence *<1-8>*

Specifies the order of priority in which the RDNSS entries are listed in Router Advertisement options.

Priority 1, listed first in the Router Advertisement option list is the highest priority while priority 8 is listed last and is the lowest priority.

The default is 8.

suppress

Suppresses RDNSS information in the Router Advertisement message.

WORD *<0-255>*

Specifies the IPv6 Server address.

Default

The default is no RDNSS defined.

Command Mode

GigabitEthernet Interface

ipv6 nd hop-limit (for a port)

Configure the hop limit sent in router advertisements.

Syntax

- **default ipv6 nd hop-limit**
- **ipv6 nd hop-limit <0-255>**
- **no ipv6 nd hop-limit**

Command Parameters

hoplimit <0-255>

Specifies the current hop limit field sent in router advertisements from this interface. The value must be the current diameter of the Internet. A value of zero indicates that the advertisement does not specify a hop-limit value.

Default

The default is 64.

Command Mode

GigabitEthernet Interface Configuration

ipv6 nd managed-config-flag (for a port)

Enable M-bit (managed address configuration) on the router.

Syntax

- **default ipv6 nd managed-config-flag**
- **ipv6 nd managed-config-flag**
- **no ipv6 nd managed-config-flag**

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

ipv6 nd mtu (for a port)

Configure the maximum transmission unit (MTU) for router advertisements.

Syntax

- **default ipv6 nd mtu**

- **ipv6 nd mtu <0-9500>**
- **no ipv6 nd mtu**

Command Parameters

mtu <0-9500>

Shows the MTU value sent in router advertisements on this interface. A value of zero indicates that the system sends no MTU options. Valid values are: 0, 1280-1500, 1850, or 9500.

Default

None

Command Mode

GigabitEthernet Interface Configuration

ipv6 nd other-config-flag (for a port)

Enable the O-bit (other stateful configuration) in the router advertisement. Other stateful configuration autoConfigure received information without addresses.

Syntax

- **default ipv6 nd other-config-flag**
- **ipv6 nd other-config-flag**
- **no ipv6 nd other-config-flag**

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

ipv6 nd prefix (for a port)

Configure neighbor discovery prefixes. IPv6 nodes on the same link use ND to discover link-layer addresses and to obtain and advertise various network parameters and reachability information. ND combines the services provided by ARP and router discovery for IPv4. IPv6 router advertisement includes discovery prefixes.

Syntax

- **default ipv6 nd prefix WORD<0-255>**
- **default ipv6 nd prefix WORD<0-255> no-advertise**
- **default ipv6 nd prefix WORD<0-255> preferred-life**
- **default ipv6 nd prefix WORD<0-255> valid-life**
- **ipv6 nd prefix WORD<0-255> infinite**
- **ipv6 nd prefix WORD<0-255> no-advertise**
- **ipv6 nd prefix WORD<0-255> preferred-life <0-4294967295>**
- **ipv6 nd prefix WORD<0-255> valid-life <0-4294967295>**
- **no ipv6 nd prefix WORD<0-255>**
- **no ipv6 nd prefix WORD<0-255> no-advertise**
- **no ipv6 nd prefix-interface WORD<0-255>**
- **no ipv6 nd prefix-interface WORD<0-255> no-advertise**

Command Parameters

infinite

Configures the prefix as infinite.

no-advertise

Removes the prefix from the neighbor advertisement. The default for noadvertise is disabled.

preferred-life <0-4294967295>

Configures the preferred life, in seconds. The valid range is 0-4294967295. The default preferred-life is 604800.

valid-life <0-4294967295>

Configures the valid life, in seconds. The valid range is 0-4294967295. The default valid-life is 2592000.

Default

None

Command Mode

GigabitEthernet Interface Configuration

ipv6 nd prefix-interface (for a port)

Configure neighbor discovery prefixes IPv6 nodes on the same link use ND to discover link-layer addresses and to obtain and advertise various network parameters and reachability information. ND combines the services provided by Address Resolution

Protocol (ARP) and router discovery for IPv4. IPv6 router advertisement includes discovery prefixes.

Syntax

- **default ipv6 nd prefix-interface WORD<0-255>**
- **default ipv6 nd prefix-interface WORD<0-255> no-advertise**
- **ipv6 nd prefix-interface WORD<0-255>**
- **ipv6 nd prefix-interface WORD<0-255> eui <1-3>**
- **ipv6 nd prefix-interface WORD<0-255> no-advertise**
- **ipv6 nd prefix-interface WORD<0-255> no-autoconfig**
- **ipv6 nd prefix-interface WORD<0-255> no-onlink**
- **no ipv6 nd prefix-interface WORD<0-255> [no-advertise]**

Command Parameters

eui <1-3>

Specifies if extended unique identifier (EUI) is used. The values are:(1) EUI not used (2) EUI with Universal/Local bit (U/L) complement enabled (3) EUI used without U/L.

no-advertise

Removes the prefix from the neighbor advertisement. The default is disabled.

no-autoconfig

Configures if the prefix is used for autonomous address configuration.

no-onlink

Configures if onlink determination uses the prefix. This value is placed in the L-bit field in the prefix information option and is a 1-bit flag.

WORD <0-255>

Specifies the IPv6 address prefix.

Default

None

Command Mode

GigabitEthernet Interface Configuration

ipv6 nd ra-lifetime (for a port)

Configure the router lifetime included in router advertisement. Other devices use this information to determine if the router can be reached.

Syntax

- **default ipv6 nd ra-lifetime**
- **ipv6 nd ra-lifetime <0-9000>**

Command Parameters

<0-9000>

Configures the router lifetime included in router advertisement. The range is 0 or <4-9000>.

Default

The default is 1800.

Command Mode

GigabitEthernet Interface Configuration

ipv6 nd reachable-time (for a port)

Configure the neighbor reachable time.

Syntax

- **ipv6 nd reachable-time <0-3600000>**

Command Parameters

reachable-time <0-3600000>

Specifies a value (in milliseconds) placed in the router advertisement message sent by the router. The value zero means unspecified (by this system).

Configure the amount of time that a remote IPv6 node is considered reachable after a reachability confirmation event.

Default

None

Command Mode

GigabitEthernet Interface Configuration

ipv6 nd retransmit-timer (for a port)

Configure the time between neighbor solicitation messages.

Syntax

- **ipv6 nd retransmit-timer <0-4294967295>**

Command Parameters

retransmit-timer <0-4294967295>

Specifies a value (in milliseconds) placed in the retransmit timer field in the router advertisement message sent from this interface. The value zero means unspecified (by this system).

The value configures the amount of time the system waits for the transmission to occur.

Default

None

Command Mode

GigabitEthernet Interface Configuration

ipv6 nd rtr-advert-max-interval (for a port)

Configure the maximum time allowed between sending unsolicited multicast router advertisements.

Syntax

- **default ipv6 nd rtr-advert-max-interval**
- **ipv6 nd rtr-advert-max-interval <4-1800>**

Command Parameters

<4-1800>

Specifies the maximum interval value.

Default

The default is 600.

Command Mode

GigabitEthernet Interface Configuration

ipv6 nd rtr-advert-min-interval (for a port)

Configure the minimum time allowed between sending unsolicited multicast router advertisements from the interface.

Syntax

- **default ipv6 nd rtr-advert-min-interval**
- **ipv6 nd rtr-advert-min-interval <3-1350>**

Command Parameters

<3-1350>

Configures the minimum time, in seconds.

Default

The default is 200.

Command Mode

GigabitEthernet Interface Configuration

ipv6 nd send-ra (for a port)

Enable or disables periodic router advertisement messages.

Syntax

- **default ipv6 nd send-ra**
- **ipv6 nd send-ra**
- **no ipv6 nd send-ra**

Default

The default is enabled.

Command Mode

GigabitEthernet Interface Configuration

ipv6 nd valid-life (for a port)

Modify an existing neighbor discovery prefix. Configure the valid lifetime in seconds that indicates the length of time this prefix is advertised.

Syntax

- **ipv6 nd prefix WORD<0-255> valid-life <0-4294967295>**

Command Parameters

valid-life <0-4294967295>

Configures the valid lifetime in seconds that indicates the length of time this prefix is advertised. The default is 2592000.

A valid lifetime is the length of time of the preferred and depreciated state of an auto configuration address.

WORD<0-255>

Specifies the IPv6 address and prefix.

Default

The default is 2592000.

Command Mode

GigabitEthernet Interface Configuration

ipv6 ospf (for a port)

Configure OSPFv3 on an interface.

Syntax

- **default ipv6 ospf**
- **default ipv6 ospf cost**
- **default ipv6 ospf dead-interval**
- **default ipv6 ospf enable**
- **default ipv6 ospf hello-interval**
- **default ipv6 ospf link-lsa-suppression**
- **default ipv6 ospf nbma-nbr WORD<0-43>**
- **default ipv6 ospf poll-interval**
- **default ipv6 ospf priority**
- **default ipv6 ospf retransmit-interval**
- **default ipv6 ospf transit-delay**
- **ipv6 ospf cost <0-65535>**
- **ipv6 ospf dead-interval <1-65535>**
- **ipv6 ospf enable**
- **ipv6 ospf hello-interval <1-65535>**

- **ipv6 ospf nbma-nbr WORD<0-43> <0-255>**
- **ipv6 ospf nbma-nbr WORD<0-43> priority <0-255>**
- **ipv6 ospf poll-interval <0-65535>**
- **ipv6 ospf priority <0-255>**
- **ipv6 ospf retransmit-interval <1-1800>**
- **ipv6 ospf transit-delay <1-1800>**
- **no ipv6 ospf**
- **no ipv6 ospf enable**
- **no ipv6 ospf link-lsa-suppression**
- **no ipv6 ospf nbma-nbr WORD<0-43>**

Command Parameters

cost <0-65535>

Configures the OSPF metric for the interface. The switch advertises the metric in router link advertisements. The default is 1.

dead-interval <1-65535>

Specifies the dead interval, as the number of seconds to wait before determining the OSPF router is down. The default is 40.

enable

Enables the OSPF on the IPv6 interface.

hello-interval <1-65535>

Specifies the hello interval, in seconds, for hello packets sent between switches for a virtual interface in an OSPF area. The default is 10.

link-lsa-suppression

Enables link lsa suppression

nbma-nbr WORD<0-43>

Configures an NBMA neighbor. WORD<0-43> specifies the IPv6 address. Use priority <0-255> to change an existing priority value for an NBMA neighbor. Use <0-255> to assign the priority value when you create the neighbor.

poll-interval <0-65535>

Configures the polling interval for the OSPF interface in seconds. The default is 120.

priority <0-255>

Configures the OSPF priority for the interface during the election process for the designated router. The interface with the highest priority number is the designated router. The interface with the second-highest priority becomes the backup designated router.

If the priority is 0, the interface cannot become either the designated router or a backup. The priority is used only during election of the designated router and backup designated router. The default is 1.

retransmit-interval <1-1800>

Specifies the retransmit interval, in seconds, for link-state advertisements. The default is 5.

transit-delay <1-1800>

Specifies the transit-delay interval, in seconds, required to transmit a link-state update packet over the virtual interface. The default is 1.

Default

None

Command Mode

GigabitEthernet Interface Configuration

ipv6 ospf area (for a port)

Configure an OSPFv3 area on an interface.

Syntax

- **ipv6 ospf area {A.B.C.D}**
- **ipv6 ospf area {A.B.C.D} cost <0-65535>**
- **ipv6 ospf area {A.B.C.D} dead-interval <1-65535>**
- **ipv6 ospf area {A.B.C.D} hello-interval <1-65535>**
- **ipv6 ospf area {A.B.C.D} network eth**
- **ipv6 ospf area {A.B.C.D} network nbma**
- **ipv6 ospf area {A.B.C.D} network p2mp**
- **ipv6 ospf area {A.B.C.D} network p2p**
- **ipv6 ospf area {A.B.C.D} network passive**
- **ipv6 ospf area {A.B.C.D} priority <0-255>**
- **ipv6 ospf area {A.B.C.D} retransmit-interval <1-1800>**
- **ipv6 ospf area {A.B.C.D} transit-delay <1-1800>**

Command Parameters

area {A.B.C.D}

Creates an IPv6 OSPF area.

cost <0-65535>

Configures the OSPF metric for the interface. The switch advertises the metric in router link advertisements. The default is 1.

dead-interval <1-65535>

Specifies the dead interval, as the number of seconds to wait before determining the OSPF router is down. The default is 40.

hello-interval <1-65535>

Specifies the hello interval, in seconds, for hello packets sent between switches for a virtual interface in an OSPF area. The default is 10.

network <eth|nbma|p2mp|p2p|passive>

Configures the type of interface as one of the following: eth: broadcast, nbma: NBMA, p2mp: point-to-multipoint, p2p:pointto-point, or passive: passive interface.

priority <0-255>

Configures the OSPF priority for the interface during the election process for the designated router. The interface with the highest priority number is the designated router. The interface with the second-highest priority becomes the backup designated router.

If the priority is 0, the interface cannot become either the designated router or a backup. The priority is used only during election of the designated router and backup designated router. The default is 1.

retransmit-interval <1-1800>

Specifies the retransmit interval, in seconds, for link-state advertisements. The default is 5.

transit-delay <1-1800>

Specifies the transit-delay interval, in seconds, required to transmit a link-state update packet over the virtual interface. The default is 1.

Default

None

Command Mode

GigabitEthernet Interface Configuration

ipv6 ospf bfd

Enable Bidirectional Forwarding Detection (BFD) for an OSPF GigabitEthernet IPv6 interface.

Syntax

- **ipv6 ospf bfd**
- **ipv6 ospf bfd disable**

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

Usage Guidelines

This command is available for demonstration purposes only. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

ipv6 pim enable (for a port)

Enable PIM globally on the switch.

Syntax

- **default ipv6 pim enable**
- **ipv6 pim enable**
- **no ipv6 pim enable**

Default

The default is disabled

Command Mode

GigabitEthernet Interface Configuration

ipv6 pim hello-interval (for a port)

Configure the time between hello messages.

Syntax

- **default ipv6 pim hello-interval**
- **ipv6 pim hello-interval <0-18724>**

Command Parameters

<0–18724>

Specifies the duration in seconds before the PIM router sends out the next hello message to neighboring switches.

Default

The default is 30 seconds

Command Mode

GigabitEthernet Interface Configuration

ipv6 pim join-prune-interval (for a port)

Configure the interval for join and prune messages.

Syntax

- **default ipv6 pim join-prune-interval**
- **ipv6 pim join-prune-interval <1-18724>**

Command Parameters

<1-18724>

Specifies the duration in seconds before the PIM router sends out the next join or prune message to its upstream neighbors.

Default

The default is disabled

Command Mode

GigabitEthernet Interface Configuration

ipv6 rip cost (for a port)

Configure the RIPng cost for this port (link).

Syntax

- **default ipv6 rip cost**
- **ipv6 rip cost <1-15>**

Command Parameters

<1-15>

Specifies the cost value.

Default

None

Command Mode

GigabitEthernet Interface Configuration

ipv6 rip poison enable (for a port)

Enable poison reverse.

Syntax

- **default ipv6 rip poison enable**
- **ipv6 rip poison enable**
- **no ipv6 rip poison enable**

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

ipv6 rvs-path-chk

Configure unicast reverse path forwarding on a port (IPV4).

Syntax

- **default ipv6 rvs-path-chk**
- **default ipv6 rvs-path-chk mode**
- **ipv6 rvs-path-chk**
- **ipv6 rvs-path-chk mode exist-only**
- **ipv6 rvs-path-chk mode strict**
- **no ipv6 rvs-path-chk**

Command Parameters

mode {strict|exist-only}

Specifies the mode for Unicast Reverse Path Forwarding (uRPF).

- In strict mode, uRPF checks whether the source IP address of the incoming packet exists in the FIB. If the incoming interface is not the best reverse path, the packet check fails and uRPF drops the packet.
- In exist-only mode, uRPF checks whether the source IP address of the incoming packet exists in the FIB. The packet is dropped only if the source address is not reachable via any interface on that router.

Default

None

Command Mode

GigabitEthernet Interface Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

ipv6 source-guard

Configures IP Source Guard (IPSG) on a port, for IPv6 addresses. When you enable IPSG on the port, filters are automatically installed for the IPv6 addresses that are already learned on that interface.

Syntax

- **default ipv6 source-guard enable**
- **ipv6 source-guard enable**
- **ipv6 source-guard max-allowed-addr <2-10>**
- **ipv6 source-guard overflow-count clear**
- **no ipv6 source-guard enable**

Command Parameters

enable

Enables IPSG on a port, for IPv6 addresses. When you enable IPSG on the port, filters are automatically installed for the IPv6 addresses that are already learned on that interface.

max-allowed-addr <2-10>

Configures the maximum number of IPv6 addresses allowed on the port. The default value is 4.

overflow-count clear

Clears the IPSG overflow counters. Overflow counters consists of IPv6 addresses that are not added to IPSG due to lack of filter resources.

On the switch, the total number of filters cannot exceed 256. This limit includes the filters for IPSG and the manually created ACLs.

Default

IPSG for IPv6 addresses is disabled by default.

Command Mode

GigabitEthernet Interface Configuration

ipv6 vrrp (for a port)

Configure Virtual Router Redundancy Protocol (VRRP) to provide fast failover of a default router for IPv6 LAN hosts.

Syntax

- **default ipv6 vrrp <1-255> [enable]**
- **ipv6 vrrp <1-255> enable**
- **no ipv6 vrrp <1-255> [enable]**

Command Parameters

<1-255>

Specifies a number that uniquely identifies a virtual router on an interface. The virtual router acts as the default router for one or more assigned addresses.

enable

Enables IPv6 Virtual Router Redundancy Protocol (VRRP).

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

ipv6 vrrp <1-255> accept-mode enable

Configures the master or backup master router to accept packets destined to the IPv6 address associated with the virtual router

Syntax

- **default ipv6 vrrp <1-255> accept-mode enable**
- **ipv6 vrrp <1-255> accept-mode enable**
- **no ipv6 vrrp <1-255> accept-mode enable**

Command Parameters

<1-255>

Specifies a number that uniquely identifies a virtual router on an interface. The virtual router acts as the default router for one or more assigned addresses.

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

ipv6 vrrp <1-255> action

Configures the action of the routing interface.

Syntax

- **default ipv6 vrrp <1-255> action**
- **ipv6 vrrp <1-255> action {none | preempt}**

Command Parameters

{none|preempt}

Specifies the action of the routing interface:

- none—do not override the holddown timer
- preempt—override the holddown timer

Default

The default is none.

Command Mode

GigabitEthernet Interface Configuration

Usage Guidelines

This command applies only if the holddown timer is active.

ipv6 vrrp <1-255> adver-int

Configures the time interval between sending Virtual Router Redundancy Protocol (VRRP) advertisement messages.

Syntax

- **default ipv6 vrrp <1-255> adver-int**
- **ipv6 vrrp <1-255> adver-int <1..40>**

Command Parameters

<1-255>

Specifies a unique integer value that represents the virtual router ID. The virtual router acts as the default router for one or more assigned addresses.

<1..40>

Specifies the time interval (in seconds) between sending Virtual Router Redundancy Protocol (VRRP) advertisement messages. This value must be the same on all the participating routers.

Default

The default is 1 second.

Command Mode

GigabitEthernet Interface Configuration

ipv6 vrrp <1-255> backup-master enable

Enables the Virtual Router Redundancy Protocol (VRRP) backup master.

Syntax

- **default ipv6 vrrp <1-255> backup-master enable**
- **ipv6 vrrp <1-255> backup-master enable**
- **no ipv6 vrrp <1-255> backup-master enable**

Command Parameters

<1-255>

Specifies a unique integer value that represents the virtual router ID. The virtual router acts as the default router for one or more assigned addresses.

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

ipv6 vrrp <1-255> critical-ipv6-addr

Configures the critical IPv6 address for VRRP.

Syntax

- **default ipv6 vrrp <1-255> critical-ipv6-addr**
- **ipv6 vrrp <1-255> critical-ipv6-addr WORD<0-46>**

Command Parameters

<1-255>

Specifies a unique integer value that represents the virtual router ID. The virtual router acts as the default router for one or more assigned addresses.

WORD<0-46>

Specifies the critical IPv6 address for VRRP. If that IP interface is down, the VRRP state transitions to Backup, even if it has higher priority.

Default

None

Command Mode

GigabitEthernet Interface Configuration

ipv6 vrrp <1-255> critical-ipv6 enable

Enables the critical IPv6 address for VRRP.

Syntax

- **default ipv6 vrrp <1-255> critical-ipv6 enable**
- **ipv6 vrrp <1-255> critical-ipv6 enable**
- **no ipv6 vrrp <1-255> critical-ipv6 enable**

Command Parameters

<1-255>

Specifies a unique integer value that represents the virtual router ID. The virtual router acts as the default router for one or more assigned addresses.

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

Usage Guidelines

Do not enable critical IPv6 if Backup Master is enabled.

ipv6 vrrp <1-255> fast-adv enable

Enables the Fast Advertisement Interval.

Syntax

- **default ipv6 vrrp <1-255> fast-adv enable**
- **ipv6 vrrp <1-255> fast-adv enable**
- **no ipv6 vrrp <1-255> fast-adv enable**

Command Parameters

<1-255>

Specifies a unique integer value that represents the virtual router ID. The virtual router acts as the default router for one or more assigned addresses.

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

ipv6 vrrp <1-255> fast-adv-int

Configures the time interval between sending VRRP advertisement messages.

Syntax

- **default ipv6 vrrp <1-255> fast-adv-int**
- **ipv6 vrrp <1-255> fast-adv-int <200-1000>**

Command Parameters

<1-255>

Specifies a unique integer value that represents the virtual router ID. The virtual router acts as the default router for one or more assigned addresses.

<200-1000>

Specifies the time interval in milliseconds between sending VRRP advertisement messages. The range must be the same on all participating routers. You must enter values in multiples of 200 milliseconds.

Default

The default is 200.

Command Mode

GigabitEthernet Interface Configuration

ipv6 vrrp <1-255> holddown-timer

Configures the time interval (in seconds) to wait before preempting the current VRRP primary router.

Syntax

- **default ipv6 vrrp <1-255> holddown-timer**
- **ipv6 vrrp <1-255> holddown-timer <0-21600>**

Command Parameters

<1-255>

Specifies a unique integer value that represents the virtual router ID. The virtual router acts as the default router for one or more assigned addresses.

<0-21600>

Specifies the time interval (in seconds) to wait before preempting the current VRRP primary router.

Default

The default is 0.

Command Mode

GigabitEthernet Interface Configuration

ipv6 vrrp <1-255> preempt-mode enable

Enables preempt mode for vrrp (v3). If a new router is added to the network with its priority higher than the existing routers, then the new router becomes the master.

Syntax

- **default ipv6 vrrp <1-255> preempt-mode**
- **ipv6 vrrp <1-255> preempt-mode enable**
- **no ipv6 vrrp <1-255> preempt-mode enable**

Command Parameters

<1-255>

Specifies a unique integer value that represents the virtual router ID. The virtual router acts as the default router for one or more assigned addresses.

Default

The default is enabled.

Command Mode

GigabitEthernet Interface Configuration

ipv6 vrrp <1-255> priority

Configures the port Virtual Router Redundancy Protocol (VRRP) priority.

Syntax

- **default ipv6 vrrp <1-255> priority**
- **ipv6 vrrp <1-255> priority <1..254>**

Command Parameters

<1-255>

Specifies a unique integer value that represents the virtual router ID. The virtual router acts as the default router for one or more assigned addresses.

<1..254>

Specifies the priority value used by this VRRP router. The value 255 is reserved for the router that owns the IP addresses associated with the virtual router.

Default

The default is 100.

Command Mode

GigabitEthernet Interface Configuration

ipv6 vrrp address (for a port)

Specify a link-local address to associate with the virtual router. Optionally, you can also assign global unicast IPv6 addresses to associate with the virtual router. Network prefixes for the virtual router are derived from the global IPv6 addresses assigned to the virtual router.

Syntax

- **default ipv6 vrrp address <1-255>**
- **ipv6 vrrp address <1-255> global WORD<0-225>**
- **ipv6 vrrp address <1-255> link-local WORD<0-127>**
- **no ipv6 vrrp address <1-255>**
- **no ipv6 vrrp address <1-255> global WORD<0-225>**

Command Parameters

<1-255>

Specifies the virtual router ID. The virtual router acts as the default router for one or more associated addresses.

global WORD<0-255>

Specifies a global IPv6 address to associate with the virtual router.

link-local WORD<0-127>

Specifies a link-local IPv6 address to associate with the virtual router.

Default

None

Command Mode

GigabitEthernet Interface Configuration

i-sid (for a port)

Create Switched UNI (S-UNI) service instance identifiers (I-SID).

Syntax

- **i-sid <1-16777215> elan**

Command Parameters

<1-16777215>

Specifies the I-sid number.

elan

Create an elan based service.

Default

None

Command Mode

GigabitEthernet Interface Configuration

isis (on a port)

Create an Intermediate-System-to-Intermediate-System (IS-IS) circuit and interface on the selected ports.

Syntax

- **default isis enable**
- **isis**
- **isis enable**
- **no isis**
- **no isis enable**

Command Parameters

enable

Enables the Intermediate-System-to-Intermediate-System (IS-IS) circuit and interface on the selected ports.

Default

None

Command Mode

GigabitEthernet Interface Configuration

isis hello-auth (on a port)

Specify the authentication type used for Intermediate-System-to-Intermediate-System (IS-IS) hello packets on the interface. The type can be one of the following: none, hmac-md5, or hmac-sha-256.

Syntax

- **default isis hello-auth**
- **isis hello-auth type { none | simple | hmac-md5 | hmac-sha-256 }**
- **isis hello-auth type { none | simple | hmac-md5 | hmac-sha-256 } key WORD<1-16>**
- **isis hello-auth type { none | simple | hmac-md5 | hmac-sha-256 } key WORD<1-16> key-id <1-255>**
- **no isis hello-auth**

Command Parameters

key WORD<1-16>

Specifies the authentication key (password) used by the receiving router to verify the packet.

key-id <1-255>

Specifies the optional key ID.

type { none | simple | hmac-md5 | hmac-sha-256}

Specifies the authentication type used for IS-IS hello packets on the interface. The type can be one of the following: none, simple, hmac-md5, or hmac-sha-256. The default type is none. Use the no or default options to set the hello-auth type to none.

- If simple is selected, you can also specify a key value. Simple password authentication uses a text password in the transmitted packet. The receiving router uses an authentication key (password) to verify the packet.
- If hmac-md5 is selected, you can also specify a key value and key-id. MD5 authentication creates an encoded checksum in the transmitted packet. The receiving router uses an authentication key (password) to verify the MD5 checksum of the packet.
- If hmac-sha-256 is selected, you can also specify a key value and key-id. With SHA-256 authentication, the switch adds an HMAC-SHA256 digest to each Hello packet. The switch that receives the Hello packet computes the digest of the packet and compares it with the received digest. If the digests match, the packet is accepted. If the digests do not match, the receiving switch discards the packet.

Default

The default is no authentication type (none).

Command Mode

GigabitEthernet Interface Configuration

isis l1-dr-priority (on a port)

Configure the Level 1 Intermediate-System-to-Intermediate-System (IS-IS) designated router priority to the specified value.

Syntax

- **default isis l1-dr-priority**
- **isis l1-dr-priority <0-127>**
- **no isis l1-dr-priority**

Command Parameters

<0-127>

Configures the Level 1 Intermediate-System-to-Intermediate-System (IS-IS) designated router priority to the specified value.

Default

The default Level 1 designated router priority value is 64.

Command Mode

GigabitEthernet Interface Configuration

isis l1-hello-interval (on a port)

Configure the hello interval to change how often hello packets are sent out from an interface level.

Syntax

- **default isis l1-hello-interval**
- **isis l1-hello-interval <1-600>**
- **no isis l1-hello-interval**

Command Parameters

<1-600>

Configures the Level 1 hello interval.

Default

The default Level 1 hello interval value is 9 seconds.

Command Mode

GigabitEthernet Interface Configuration

isis l1-hello-multiplier (on a port)

Configure the hello multiplier to specify how many hellos the switch must miss before it considers the adjacency with a neighboring switch down.

Syntax

- **default isis l1-hello-multiplier**
- **isis l1-hello-multiplier <1-600>**
- **no isis l1-hello-multiplier**

Command Parameters

<1-600>

Configures the Level 1 hello multiplier.

Default

The default Level 1 hello-multiplier value is 3 seconds.

Command Mode

GigabitEthernet Interface Configuration

isis remote

Enables the remote Intermediate-System-to-Intermediate-System (IS-IS) interface on the selected port(s).



Note

When the switch receives a Fabric Connect TLV through LLDP on a port that has remote IS-IS enabled on it, the port transitions to the Auto-sense NNI pending state. For more information about the Auto-sense port states, see *Fabric Engine User Guide*.

Syntax

- **default isis remote**
- **default isis remote enable**

- **isis remote**
- **isis remote enable**
- **no isis remote**
- **no isis remote enable**

Command Parameters

enable

Enables the remote Intermediate-System-to-Intermediate-System (IS-IS) interface on the selected ports.

Default

The default is none.

Command Mode

GigabitEthernet Interface Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

isis remote hello-auth

Specify the authentication type used for remote Intermediate-System-to-Intermediate-System (IS-IS) hello packets on the interface. The type can be none, simple, hmac-md5, or hmac-sha-256.

Syntax

- **default isis remote hello-auth**
- **isis remote hello-auth type { none | simple | hmac-md5 | hmac-sha-256 }**
- **isis remote hello-auth type { none | simple | hmac-md5 | hmac-sha-256 } key WORD<1-16>**
- **isis remote hello-auth type { none | simple | hmac-md5 | hmac-sha-256 } key WORD<1-16> key-id <1-255>**
- **no isis remote hello-auth**

Command Parameters

key WORD<1-16>

Specifies the authentication key (password) that the receiving router uses to verify the packet.

key-id <1-255>

Specifies the optional key ID.

type { none | simple | hmac-md5 | hmac-sha-256}

Specifies the authentication type used for remote IS-IS hello packets on the interface. The type can be one of the following:

- Simple - Simple password authentication uses a text password in the transmitted packet. The receiving router uses an authentication key (password) to verify the packet. You can also specify a key value.
- hmac-md5 - MD5 authentication creates an encoded checksum in the transmitted packet. The receiving router uses an authentication key (password) to verify the MD5 checksum of the packet. You can also specify a key value and key-id.
- hmac-sha-256 - With SHA-256 authentication, the switch adds an HMAC-SHA256 digest to each Hello packet. The switch that receives the Hello packet computes the digest of the packet and compares it with the received digest. If the digests match, the packet is accepted. If the digests do not match, the receiving switch discards the packet. You can also specify a key value and key-id.

The default type is none.

Default

The default is no authentication type (none).

Command Mode

GigabitEthernet Interface Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

isis remote l1-dr-priority

Configure the Level 1 remote Intermediate-System-to-Intermediate-System (IS-IS) designated router priority to the specified value.

Syntax

- **default isis remote l1-dr-priority**
- **isis remote l1-dr-priority <0-127>**
- **no isis remote l1-dr-priority**

Command Parameters

<0-127>

Configures the Level 1 remote IS-IS designated router priority to the specified value.

Default

The default Level 1 designated router priority value is 64.

Command Mode

GigabitEthernet Interface Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

isis remote l1-hello-interval

Configure the remote hello interval to change how often hello packets are sent out from an interface level.

Syntax

- **default isis remote l1-hello-interval**
- **isis remote l1-hello-interval <1-600>**
- **no isis remote l1-hello-interval**

Command Parameters

<1-600>

Configures the Level 1 remote hello interval.

Default

The default Level 1 remote hello interval value is 9 seconds.

Command Mode

GigabitEthernet Interface Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

isis remote l1-hello-multiplier

Configures the remote hello multiplier to specify how many hellos the switch must miss before it considers the adjacency with a neighboring switch down.

Syntax

- **default isis remote l1-hello-multiplier**
- **isis remote l1-hello-multiplier <1-600>**
- **no isis remote l1-hello-multiplier**

Command Parameters

<1-600>

Configures the level 1 hello multiplier.

Default

The default Level 1 hello multiplier value is 3.

Command Mode

GigabitEthernet Interface Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

isis remote spbm

Enable the Shortest Path Bridging MAC (SPBM) instance on the remote Intermediate-System-to-Intermediate-System (IS-IS) interfaces.

Syntax

- **default isis remote spbm <1-100> interface-type**
- **default isis remote spbm <1-100> l1-metric**
- **isis remote spbm <1-100>**
- **isis remote spbm <1-100> interface-type { broadcast | pt-pt }**
- **isis remote spbm <1-100> l1-metric { <1-16777215> | auto }**
- **no isis remote spbm <1-100>**
- **no isis remote spbm <1-100> interface-type**
- **no isis remote spbm <1-100> l1-metric**

Command Parameters

spbm <1-100>

Specifies the SPBM instance ID.

interface-type { broadcast | pt-pt }

Configures the remote SPBM instance interface type.

l1-metric { <1-16777215> | auto }

Manually configure the cost for the remote SPBM instance or automatically determine the network route by summing the lowest value metrics. The metrics are inversely proportional to port speed. The default is 10.

Default

The default is none.

Command Mode

GigabitEthernet Interface Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

isis spbm (on a port)

Enable the Shortest Path Bridging MAC (SPBM) instance on the Intermediate-System-to-Intermediate-System (IS-IS) interfaces.

Syntax

- **default isis spbm <1-100> interface-type**
- **default isis spbm <1-100> l1-metric**
- **isis spbm <1-100>**
- **isis spbm <1-100> interface-type { broadcast | pt-pt }**
- **isis spbm <1-100> l1-metric { <1-16777215> | auto }**
- **no isis spbm <1-100>**
- **no isis spbm <1-100> interface-type**
- **no isis spbm <1-100> l1-metric**

Command Parameters

<1-100>

Specifies the Shortest Path Bridging MAC (SPBM) instance ID.

interface-type { broadcast | pt-pt }

Configures the Shortest Path Bridging MAC (SPBM) instance interface type.

l1-metric { <1-16777215> | auto }

Configures the cost for the Shortest Path Bridging MAC (SPBM) instance. Manually configure the cost or automatically assign the inverse of the port speed as the cost. The default is **auto**.

Default

None

Command Mode

GigabitEthernet Interface Configuration

lacp aggregation enable

Configures the port as aggregatable. Use the no operator to remove this configuration.

Syntax

- **default lacp aggregation enable**
- **lacp aggregation enable**
- **no lacp aggregation enable**

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

lacp aggr-wait-time

Configure the aggregation wait time (in milliseconds) for the port.

Syntax

- **lacp aggr-wait-time <200-2000>**

Command Parameters

<200-2000>

Specifies the Aggregation time in milliseconds. The default is 2000.

Default

The default value is 2000.

Command Mode

GigabitEthernet Interface Configuration

lacp enable (for a port)

Enable LACP for the port.

Syntax

- **default lacp**
- **default lacp enable**
- **lacp enable**
- **no lacp**
- **no lacp enable**

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

lacp fast-periodic-time

Configure the fast-periodic time (in milliseconds) for the port.

Syntax

- **default lacp fast-periodic-time**
- **lacp fast-periodic-time <200-20000>**

Command Parameters

<200-20000>

Specifies the Fast periodic time value in milliseconds. The default is 20000 ms.

Default

The default is 20000 ms.

Command Mode

GigabitEthernet Interface Configuration

lacp key

Configure the aggregation key for the port.

Syntax

- **default lacp key**
- **lacp key <1-512,defVal>**

Command Parameters

<1-512,defVal>

Specifies the aggregation key for this port.

Default

The default is 0.

Command Mode

GigabitEthernet Interface Configuration

lacp mode

Configure the Link Aggregation Control Protocol (LACP) mode to be active or passive.

Syntax

- **default lacp mode**
- **lacp mode active**
- **lacp mode passive**

Command Parameters

active

Specifies the Link Aggregation Control Protocol (LACP) mode to be active.

passive

Specifies the Link Aggregation Control Protocol (LACP) mode to be passive.

Default

The default is passive.

Command Mode

GigabitEthernet Interface Configuration

lacp partner-key

Configure the partner administrative key.

Syntax

- **default lacp partner-key**
- **lacp partner-key <0-65535>**

Command Parameters

<0-65535>

Specifies the partner administrative key.

Default

The default is 0.

Command Mode

GigabitEthernet Interface Configuration

lacp partner-port

Configure the partner administrative port value.

Syntax

- **default lacp partner-port**
- **lacp partner-port <0-65535>**

Command Parameters

<0-65535>

Specifies the partner administrative port value.

Default

None

Command Mode

GigabitEthernet Interface Configuration

lacp partner-port-priority

Configure the partner administrative port priority value.

Syntax

- **default lacp partner-port-priority**
- **lacp partner-port-priority <0-65535>**

Command Parameters

<0-65535>

Specifies the partner administrative port priority value.

Default

The default is 0.

Command Mode

GigabitEthernet Interface Configuration

lacp partner-state

Configure the partner administrative state bitmask. Specify the partner administrative state bitmap in the range 0x0-0xff. The bit to state mapping is Exp, Def, Dis, Col, Syn, Agg, Time, and Act.

For example, to set the two partner-state parameters Act = true Agg = true specify a value of 0x05 (bitmap = 00000101).

Syntax

- **default lacp partner-state**
- **lacp partner-state <0-255 | 0x0-0xff>**

Command Parameters

<0-255 | 0x0-0xff>

Specifies the partner administrative state bitmask.

Default

None

Command Mode

GigabitEthernet Interface Configuration

lacp partner-system-id

Configure the partner administrative system ID.

Syntax

- **default lacp partner-system-id**
- **lacp partner-system-id <0x00:0x00:0x00:0x00:0x00:0x00>**

Command Parameters

<0x00:0x00:0x00:0x00:0x00:0x00>

Specifies the partner adminstration system ID.

Default

None

Command Mode

GigabitEthernet Interface Configuration

lacp partner-system-priority

Configure the partner administrative system priority value.

Syntax

- **default lacp partner-system-priority**
- **lacp partner-system-priority <0-65535>**

Command Parameters

<0-65535>

Specifies the partner administrative system priority value.

Default

The default value is 32768.

Command Mode

GigabitEthernet Interface Configuration

lacp priority

Configure the port priority.

Syntax

- **default lacp priority**
- **lacp priority <0-65535>**

Command Parameters

<0-65535>

Specifies the port priority.

Default

The default value is 32768.

Command Mode

GigabitEthernet Interface Configuration

lacp slow-periodic-time

Configure the slow periodic time.

Syntax

- **default lacp slow-periodic-time**
- **lacp slow-periodic-time <10000-30000>**

Command Parameters

<10000-30000>

Specifies the slow periodic time for this port.

Default

The default value is 1000 ms.

Command Mode

GigabitEthernet Interface Configuration

lacp system-priority

Configure the LACP system priority.

Syntax

- **default lacp system-priority**
- **lacp system-priority <0-65535>**

Command Parameters

<0-65535>

Specifies the system priority for this port.

Default

The default value is 32768.

Command Mode

GigabitEthernet Interface Configuration

lacp timeout-scale

Configure the timeout scale.

Syntax

- **default lacp timeout-scale**
- **lacp timeout-scale <2-10>**

Command Parameters

<2-10>

Specifies the timeout scale for this port.

Default

The default is 3.

Command Mode

GigabitEthernet Interface Configuration

lacp timeout-time

Configure the timeout to either long or short.

Syntax

- **default lacp timeout-time**
- **lacp timeout-time long**
- **lacp timeout-time short**

Command Parameters

{long | short}

Specifies the timeout.

Default

The default is long.

Command Mode

GigabitEthernet Interface Configuration

link-debounce

Configure the Link Debounce timer for a port.

Syntax

- **default link-debounce**
- **link-debounce <0-300000>**
- **no link-debounce**

Command Parameters

<0-300000>

Specifies the Link Debounce time threshold in milliseconds.

Default

The default status is disabled for all ports when not initially configured. If you run the **default link-debounce** command, the default configuration is enabled with a value of 1,000 milliseconds. To return to the initial disabled state, you must run the **no link-debounce** command or set the Link Debounce timer to 0.

If you do not configure a timer value and the port connects to SD-WAN Appliance, Auto-sense configures a value of 8000 milliseconds. Auto-sense does not overwrite a configured timer value.

Command Mode

GigabitEthernet Configuration.

Usage Guidelines

You cannot use this command on Auto-sense ports. To configure Link Debounce on Auto-sense ports, see auto-sense link-debounce {auto <0-300000> | off | on <0-300000>} on page 374.

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

lldp cdp

Enables Cisco discovery protocol on the interface.

Syntax

- **lldp cdp enable**
- **no lldp cdp enable**

Command Parameters

enable

Enables Cisco discovery protocol on the selected port(s) to accept CDP packets only.

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

lldp cdp dual-mode-enable

Configures the port to send and receive both CDP and LLDP packets.

Syntax

- **default lldp cdp enable**

- **lldp cdp dual-mode-enable**
- **no lldp cdp enable**

Default

The default is disabled.

Command Mode

GigabitEthernet Configuration

lldp location-identification civic-address

Configures civic address location information of local Link Layer Discovery Protocol-Media Endpoint Discovery (LLDP-MED) on specific ports.



Note

If you try to configure a civic-address with a large number of arguments, 26 or more, the command fails and a software message informs you to split the command into multiple smaller commands.

Syntax

- **default lldp location-identification civic-address**
- **lldp location-identification civic-address country-code WORD<2-2> (additional-code additional-information apartment block building city city-district county floor house-number house-number-suffix landmark leading-street-direction name place-type pobox postal community-name postal-zip-code room-number state street street suffix trailing-street-suffix) WORD<0-255>**
- **no lldp location-identification civic-address**

Command Parameters

additional-code WORD<0-255>

Specifies the location information parameters.

additional-information WORD<0-255>

Example: South Wing

apartment WORD<0-255>

Example: Apt 42

block WORD<0-255>

Specifies a block, for example, 3

building WORD<0-255>

Example: Low Library.

city WORD<0-255>

Specifies a city, for example, Sunnyvale

city-district WORD<0-255>

Specifies a city district, for example, Santa Clara

country-code WORD<2–2>

Specifies a country using a 2 character string, example US (United States), CA (Canada).

county WORD<0-255>

Specifies a county, for example, Alameda

floor WORD<0-255>

Example: 8

house-number WORD<0-255>

Specifies a house number, for example, 123.

house-number-suffix WORD<0-255>

Specifies a house number suffix, for example, A, 1/2.

landmark WORD<0-255>

Specifies a landmark, for example, Columbia University.

leading-street-direction WORD<0-255>

Specifies a leading street direction, for example, N

name WORD<0-255>

Example: Joe’s Barbershop

place-type WORD<0-255>

Example: office

pobox WORD<0-255>

Example: 12345

postal-community-name WORD<0-255>

Example: Leonia

postal-zip-code WORD<0-255>

Specifies a postal or zip code, for example, 95054

room-number WORD<0-255>

Example: 450F

state WORD<0-255>

Specifies a state, for example, NJ, FL

street WORD<0-255>

Specifies a street, for example, Great America Parkway

street-suffix WORD<0-255>

Specifies a street suffix, for example, Ave, Blvd

trailing-street-suffix WORD<0-255>

Specifies a trailing street suffix, for example, SW

Default

None

Command Mode

GigabitEthernet Interface Configuration

lldp location-identification coordinate

Configures coordinate based location information of local LLDP-MED on specific ports.

Syntax

- **default lldp location-identification coordinate**
- **lldp location-identification coordinate (altitude WORD<1-13> {floors | meters} datum {NAD83/MLLW | NAD83/NAVD88 | WGS84} latitude WORD<1-14> {NORTH | SOUTH} longitude WORD<1-14> {EAST | WEST})**
- **no lldp location-identification coordinate**

Command Parameters

{floors | meters}

Specifies the value.

altitude WORD<1–13>

Specifies the value for altitude.

datum {NAD83/MLLW | NAD83/NAVD88 | WGS84}

Specifies the type of reference datum.

latitude WORD<1-14>

Specifies the latitude in degrees, and its relation to the equator from North or South.

longitude WORD<1-14>

Specifies the longitude in degrees, and its relation to the prime meridian from East or West.

Default

None

Command Mode

GigabitEthernet Interface Configuration

lldp location-identification ecs-elin

Configure emergency call service location of local LLDP-MED on specific ports.

Syntax

- **default lldp location-identification ecs-elin**
- **lldp location-identification ecs-elin WORD<10-25>**
- **no lldp location-identification ecs-elin**

Command Parameters

WORD<10–25>

Specifies the emergency line information number for emergency call service.

Default

None

Command Mode

GigabitEthernet Interface Configuration

lldp med-network-policies

Configures LLDP-MED network policies on specific ports.

Syntax

- **default lldp med-network-policies {guest-voice | guest-voice-signaling | softphone-voice | streaming-video | video-conferencing | video-signaling | voice | voice-signaling}**
- **lldp med-network-policies {guest-voice | guest-voice-signaling | softphone-voice | streaming-video | video-conferencing | video-signaling | voice | voice-signaling} [dscp <0-63>] [priority <0-7>] [tagging {tagged|untagged}] [vlan-id <0-4059>]**
- **no lldp med-network-policies {guest-voice | guest-voice-signaling | softphone-voice | streaming-video | video-conferencing | video-signaling | voice | voice-signaling}**

Command Parameters

{guest-voice | guest-voice-signaling | softphone-voice | streaming-video | videoconferencing | video-signaling | voice | voice-signaling}

Specifies the type of LLDP-MED network policy.

dscp <0-63>

Specifies the Layer 3 DiffServ Code Point (DSCP) value, as defined in IETF RFC 2474 and RFC 2475.

priority <0-7>

Specifies the priority level, as defined in IEEE 802.1D.

tagging {tagged | untagged}

Specifies the type of VLAN tagging to apply on the selected ports.

vlan-id *<0-4059>*

Specifies the VLAN ID for the port, as defined in IEEE 802.1Q. If you configure priority tagged frames, the system recognizes only the 802.1D priority level and uses a value of 0 for the VLAN ID of the ingress port.

Default

None

Command Mode

GigabitEthernet Interface Configuration

lldp port

Configures LLDP on a port or ports.

Syntax

- **lldp port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} cdp**
- **lldp port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} status <txAndrx>**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

cdp

Enables Cisco discovery protocol on the selected port(s) to accept CDP packets only.

The default is disabled.

status <txAndrx>

Specifies LLDP frames to transmit and receive on the selected port(s).

The default is enabled.

Default

The default is none.

Command Mode

GigabitEthernet Interface Configuration

lldp status

Configures LLDP status on the interface.

Syntax

- **lldp status {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} <txAndrx>**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

status <txAndrx>

Specifies LLDP frames to transmit and receive on the selected port(s).

The default is enabled.

Default

The default is none.

Command Mode

GigabitEthernet Interface Configuration

lldp tx-tlv dot3

Configures dot3 Link Layer Discovery Protocol (LLDP) TLV.

Syntax

- **lldp tx-tlv dot3 {mac-phy-config-status}**
- **no lldp tx-tlv dot3 {mac-phy-config-status}**
- **default lldp tx-tlv dot3 {mac-phy-config-status}**

Default

The default is disabled.

Command Parameters

mac-phy-config-status

Specifies the status of the MAC Physical Config Status TLV. The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

lldp tx-tlv local-mgmt-addr

Configures the local management address TLV.

Syntax

- **lldp tx-tlv local-mgmt-addr**
- **no lldp tx-tlv local-mgmt-addr**
- **default lldp tx-tlv local-mgmt-addr**

Default

The default is enabled.

Command Mode

GigabitEthernet Interface Configuration

lldp tx-tlv med

Configure organization-specific TLVs for Link Layer Discovery Protocol-Media Endpoint Discovery (LLDP-MED).

Syntax

- **lldp tx-tlv med {extendedPSE | inventory | location | med-capabilities | network-policy}**
- **no lldp tx-tlv med {extendedPSE | inventory | location | med-capabilities | network-policy}**
- **default lldp tx-tlv med {extendedPSE | inventory | location | med-capabilities | network-policy}**

Command Parameters

extendedPSE

Enables advanced power management between an LLDP-MED network connectivity and endpoint devices. The TLV enables the advertisement of fine grained power requirement details, endpoint power priority, and power status for network connectivity and endpoint devices.

The default is enabled for devices that support PoE.

inventory

Specifies tracking and identification of inventory-related attributes for endpoint devices.

The default is enabled.

location

Enables the network connectivity devices to advertise location information, including emergency call service location for communication endpoint devices.

The default is enabled.

med-capabilities

Enables a network element to determine if connected devices support LLDP-MED

The default is enabled.

network-policy

Enables network connectivity and endpoint devices advertise VLAN information, Layer 2, and Layer 3 priorities associated with a specific set of applications on a port. An LLDP-MED endpoint advertises this TLV for supported application types to enable the discovery of specific policy information and the diagnosis of network policy configuration mismatch issues.

The default is enabled.

Default

The default is enabled.

Command Mode

GigabitEthernet Interface Configuration

lldp tx-tlv port-desc

Configures the port description transmission TLV.

Syntax

- **lldp tx-tlv port-desc**
- **no lldp tx-tlv port-desc**
- **default lldp tx-tlv port-desc**

Default

The default is enabled.

Command Mode

GigabitEthernet Interface Configuration

lldp tx-tlv sys-cap

Configures the system capabilities transmission TLV.

Syntax

- **lldp tx-tlv sys-cap**
- **no lldp tx-tlv sys-cap**
- **default lldp tx-tlv sys-cap**

Default

The default is enabled.

Command Mode

GigabitEthernet Interface Configuration

lldp tx-tlv sys-desc

Configures the system description transmission TLV.

Syntax

- **lldp tx-tlv sys-desc**
- **no lldp tx-tlv sys-desc**
- **default lldp tx-tlv sys-desc**

Default

The default is enabled.

Command Mode

GigabitEthernet Interface Configuration

lldp tx-tlv sys-name

Configures the system name transmission TLV.

Syntax

- **lldp tx-tlv sys-name**
- **no lldp tx-tlv sys-name**
- **default lldp tx-tlv sys-name**

Default

The default is enabled.

Command Mode

GigabitEthernet Interface Configuration

lock

Lock a port to prevent other users from changing port parameters or modifying port action.

Syntax

- **default lock**
- **default lock enable**
- **default lock port {slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]}**
- **lock**
- **lock enable**
- **no lock**
- **no lock enable**

Command Parameters

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all] [all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

GigabitEthernet Interface Configuration

macsec actor-priority

Specifies priority for key-server election.

Syntax

- **macsec actor-priority <0x00-0xff>**
- **default macsec actor-priority**

Command Parameters

<0x00-0xff>

Specifies a hexadecimal priority value for key server election. Lower values have higher priorities.

Default

The default is 10.

Command Mode

GigabitEthernet Interface Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

macsec cipher-suite

Configures the MACsec cipher suite on a switch port for enhanced traffic security.

Configuring a MACsec cipher suite is optional and is not supported on all hardware platforms.

Syntax

- **default macsec cipher-suite**
- **macsec cipher-suite {gcm-aes-128 | gcm-aes-256 | gcm-aes-xpn-128 | gcm-aes-xpn-256}**

Command Parameters

{gcm-aes-128 | gcm-aes-256 | gcm-aes-xpn-128 | gcm-aes-xpn-256}

Specifies the MACsec encryption cipher suite.

Default

The default is gcm-aes-128 cipher suite.

Command Mode

GigabitEthernet Interface Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

gcm-aes-xpn-128 and gcm-aes-xpn-256 ciphers are supported with MKA only.

macsec confidentiality-offset

Encrypts the data following the Ethernet header based on the provided offset.

Syntax

- **macsec confidentiality-offset <30-50>**
- **no macsec confidentiality-offset**

Command Parameters

<30-50>

Enter the value of confidentiality offset to be achieved. Only 30 and 50 are valid values.

Default

None

Command Mode

GigabitEthernet Interface Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

macsec connectivity-association (to a port)

Associate a port with a connectivity-association (CA).

Syntax

- **macsec connectivity-association WORD<5-32>**
- **no macsec connectivity-association WORD<5-32>**

Command Parameters

WORD<5-32>

Specifies an existing connectivity-association name as an alphanumeric string.

Default

None

Command Mode

GigabitEthernet Interface Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

macsec enable

Enable MACsec on the specified port.

Syntax

- **macsec enable**
- **no macsec enable**

Default

None

Command Mode

GigabitEthernet Interface Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

macsec encryption

Enable encryption for the frames transmitted on MACsec enabled port.

Syntax

- **macsec encryption**

- **no macsec encryption**

Command Parameters

encryption

Enables encryption for the frames transmitted on MACsec enabled port.

Default

None

Command Mode

GigabitEthernet Interface Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

macsec mka enable

Enable MKA on a port.

Syntax

- **macsec mka enable**
- **no macsec mka enable**

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

macsec mka keychain (for a port)

Associate a MACsec MKA keychain with a port.

Syntax

- **macsec mka keychain WORD<5-32>**
- **macsec mka keychain WORD<5-32> exit**
- **no macsec mka keychain WORD<5-32>**

Command Parameters

exit

Exit from the MAC MKA mode.

WORD<5-32>

Specifies the keychain name.

Default

None

Command Mode

GigabitEthernet Interface Configuration

macsec mka profile

Apply a MACsec Key Agreement (MKA) profile to a port.

Syntax

- **macsec mka profile WORD<1-16>**
- **no macsec mka profile WORD<1-16>**

Command Parameters

WORD<1-16>

Specifies the MKA profile name. An MKA profile name can consist only of alphanumeric characters (0-9, A-Z, and a-z). The profile name is case sensitive.

Command Mode

GigabitEthernet Interface Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

mac-security limit-learning

Limit MAC address learning to limit the number of forwarding database entries to protect the FDB.

Syntax

- **default mac-security limit-learning [port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}] enable**
- **default mac-security limit-learning [port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}] max-addrs**
- **default mac-security port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} limit-learning enable**
- **default mac-security port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} limit-learning port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} enable**
- **default mac-security port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} limit-learning port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} max-addrs**
- **mac-security limit-learning enable**
- **mac-security limit-learning {port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}} max-addrs <1-64000>**
- **no mac-security [port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}] limit-learning [enable]**

Command Parameters

enable

Limits the MAC learning for the port.

limit-learning max-addrs <1-64000>

Specifies the maximum number of MAC addresses to learn. The default is 1024.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

GigabitEthernet Interface Configuration

mef-uni enable (for a port)

Enable mef-union port (s).

Syntax

- **default mef-uni enable**
- **mef-uni enable**
- **no mef-uni enable**

Default

The default is enabled

Command Mode

GigabitEthernet Interface Configuration

name (for a port)

Specify the name of the port that needs to be changed and have same settings for all the ports.

Syntax

- **default name**
- **default name port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **name port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} WORD<0-64>**
- **name WORD<0-64>**
- **no name**
- **no name port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all] [all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

WORD <0-64>

Specifies the new port name.

Default

None

Command Mode

GigabitEthernet Interface Configuration

nodealias enable (for a port)

Configures Node Alias on a port.

Syntax

- **default nodealias enable**
- **nodealias enable**
- **no nodealias enable**

Default

The default is enabled on Auto-sense ports.

Command Mode

GigabitEthernet Interface Configuration

Usage Guidelines

Node Alias must be globally enabled for this command to function.

poe fast-poe-enable

Enable Fast PoE on a specific copper port.

Syntax

- **poe fast-poe-enable [port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]**
- **default poe fast-poe-enable [port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]**
- **no fast-poe-enable [port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]**

Command Parameters

port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

poe perpetual-poe-enable

Enable Perpetual PoE on a specific copper port.

Syntax

- **poe perpetual-poe-enable [port {{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]**
- **default poe perpetual-poe-enable [port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]**
- **no perpetual-poe-enable [port {{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]**

Command Parameters

port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

poe poe-limit

Configure port power limit.

Syntax

- **default poe-limit**
- **poe poe-limit <power_limit>**
- **poe poe-limit port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} <power_limit>**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

<power_limit>

Specifies the configurable power limit, in watts on a particular port. To see the available range for the switch, use the CLI Help.

Default

The default is the maximum power limit supported on the hardware platform.

Command Mode

GigabitEthernet Interface Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

The power limit varies for different hardware platforms. For more information, see *Fabric Engine User Guide*.

poe poe-pd-detect-type (for a port)

Configures the PD detection mode.

Syntax

- **default poe poe-pd-detect-type**
- **poe poe-pd-detect-type [{slot/port[/sub-port][-slot/port[/sub-port]] [,...][slot/all][all]}] {802dot3af | 802dot3af_and_legacy | 802dot3at | 802dot3at_and_legacy | 802dot3bt_type3 | 802dot3bt_type4}**

Command Parameters

802dot3af

Specifies the PD detection mode as 802.3af.

802dot3af_and_legacy

Specifies the PD detection mode as 802.3af and legacy.

802dot3at

Specifies the PD detection mode as 802.3at.

802dot3at_and_legacy

Specifies the PD detection mode as 802.3at and legacy.

802dot3bt_type3

Specifies the PD detection mode as 802.3bt Type 3 (60W).

802dot3bt_type4

Specifies the PD detection mode as 802.3bt Type 4 (90W).

Default

The default detection type is automatically configured for the highest PoE standard supported on the switch.

Command Mode

GigabitEthernet Interface Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

poe poe-priority

Configure PoE port priority.

Syntax

- **default poe poe-priority**
- **default poe poe-priority {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} {critical|high|low}**
- **poe poe-priority <critical|high|low>**
- **poe poe-priority port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} {critical|high|low}**

Command Parameters

{critical|high|low}

Configures the port priority.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all] [all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

The default is low.

Command Mode

GigabitEthernet Interface Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

poe poe-shutdown

Disable power on the port.

Syntax

- **default poe poe-shutdown**
- **default poe poe-shutdown port {slot/port[/sub-port][-slot/port[/sub-port]][,...]}**
- **poe poe-shutdown**
- **poe poe-shutdown port {slot/port[/sub-port][-slot/port[/sub-port]] [,...][slot/all][all]}**

Command Parameters

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all] [all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

The default is false.

Command Mode

GigabitEthernet Interface Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

policy-vlan-precedence

Use this command to indicate whether source MAC or IP subnet VLAN classification takes precedence.

Syntax

- **default policy-vlan-precedence**
- **default policy-vlan-precedence port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **policy-vlan-precedence port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} source-mac**
- **policy-vlan-precedence port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} subnet**
- **policy-vlan-precedence source-mac**
- **policy-vlan-precedence subnet**

Command Parameters

{source-mac|subnet}

Indicates that the source MAC-based or subnet-based VLAN classification takes precedence.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all] [all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

GigabitEthernet Interface Configuration

private-vlan

Sets the Private VLAN port type.

Syntax

- **default private-vlan**
- **no private-vlan**
- **private-vlan <isolated|promiscuous|trunk>**

Command Parameters

<isolated|promiscuous|trunk>

Sets Private VLAN port type to isolated, promiscuous, or trunk.

Default

None

Command Mode

GigabitEthernet Interface Configuration

protocol-vlan

Enable protocol-based VLAN on the port.

Syntax

- **default protocol-vlan**
- **default protocol-vlan enable**
- **default protocol-vlan port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **no protocol-vlan**
- **no protocol-vlan enable**
- **no protocol-vlan port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **protocol-vlan**
- **protocol-vlan enable**
- **protocol-vlan port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

enable

Enables or disables protocol-based VLAN for the port.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

The default is enabled.

Command Mode

GigabitEthernet Interface Configuration

qos 802.1p-override

Configure a port as untrusted to determine the Layer 2 Quality of Service (QoS) actions the switch performs. An untrusted port (override enabled) overrides 802.1p bit markings.

Syntax

- **default qos 802.1p-override**
- **default qos 802.1p-override enable**
- **no qos 802.1p-override**
- **no qos 802.1p-override enable**
- **qos 802.1p-override**
- **qos 802.1p-override enable**

Command Parameters

enable

If you configure this variable, it overrides incoming 802.1p bits; if you do not configure this variable, it honors and handles incoming 802.1p bits. The default is disable (Layer 2 trusted).

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

qos if-shaper

Configure port-based shaping to rate-limit all outgoing traffic to a specific rate.

Syntax

- **default qos if-shaper**
- **default qos if-shaper port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **no qos if-shaper**
- **no qos if-shaper port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

- **qos if-shaper port {slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]} shape-rate WORD<1000-100000000>**
- **qos if-shaper shape-rate WORD<1000-100000000>**

Command Parameters

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all] [all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

shape-rate WORD<1000-100000000>

Specifies the shaping rate in Kb/s. If you try to configure a limit that is too high for the port speed, the switch displays the following message:

```
Error: port slot/port, The QOS Egress shaper rate can not exceed
the port capability
```

The default is 0, which means shaping is disabled on the port.

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

qos level

Configure the default port QoS level to assign a default QoS level for all traffic (providing the packet does not match an ACL that remarks the packet).

Syntax

- **default qos level**
- **default qos level port {slot/port[/sub-port]}**
- **qos level <0-6>**
- **qos level port {slot/port[/sub-port]} <0-6>**

Command Parameters

<0-6>

Specifies the default Quality of Service (QoS) level for the port traffic. QoS level 7 is reserved for network control traffic.

port *{slot/port[/sub-port]}*

Identifies a single slot and port. If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

The default value is 1.

Command Mode

GigabitEthernet Interface Configuration

rate-limit

Configure broadcast, unknown unicast, and multicast bandwidth limiting to limit the amount of ingress traffic on a port. The switch drops traffic that violates the bandwidth limit.

Syntax

- **default rate-limit [port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}] {broadcast | multicast | unknown-unicast}**
- **no rate-limit [port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}] {broadcast | multicast | unknown-unicast}**
- **rate-limit[port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}] {broadcast | multicast | unknown-unicast} <1-65535>**

Command Parameters

broadcast <1-65535>

Rate limit for broadcast.

multicast <1-65535>

Rate limit for multicast.

unknown-unicast <1-65535>

Rate limit for unknown unicast.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

The default is disabled (no rate limit).

Command Mode

GigabitEthernet Interface Configuration

rate-limit action shutdown <60-3600>

Configures if Storm Control shuts down the port after packets are dropped for exceeding the configured rate limit, and if so, how long the port remains in the shutdown state. If you do not specify the time value, the port remains shut down until you manually re-enable it.

Syntax

- **default rate-limit action shutdown**
- **rate-limit action shutdown [<60-3600>]**
- **no rate-limit action shutdown**

Default

By default, the port does not shut down.

Command Mode

GigabitEthernet Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

rate-limit action threshold <1-4294967295>

Specifies a threshold value for the delta of dropped packets per polling interval that triggers the port shut down.

Syntax

- **default rate-limit action threshold**
- **rate-limit action threshold <1-4294967295>** 87///

Default

The default is 1.

Command Mode

GigabitEthernet Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

rate-limit action trap-interval <0-1000>

Specifies the SNMP trap notification frequency after packets are dropped for exceeding the configured rate limit.

Syntax

- **default rate-limit action trap-interval <0-1000>**
- **no rate-limit action trap-interval <0-1000>**
- **rate-limit action trap-interval <0-1000>**

Command Parameters

<0-1000>

Specifies the frequency, in polling cycles, of SNMP trap generation. Configure the value to 0 to disable traps.

Default

The default is 0.

Command Mode

GigabitEthernet Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

rmon (for a port)

Configure Remote Network Monitoring (RMON) on a particular port.

Syntax

- **default rmon**
- **no rmon**
- **rmon**

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

sflow counter-interval

Configure the counter sampling interval values at port level to determine how often the sFlow agent polls and exports counters for a configured interface.

Syntax

- **default sflow counter-interval**
- **no sflow counter-interval**
- **sflow counter-interval <1-3600>**

Command Parameters

<1-3600>

Specifies the polling interval for a slot.

Default

The default is 0 (disabled).

Command Mode

GigabitEthernet Interface Configuration

sflow max-header-size

Specifies the maximum number of bytes to be copied from the sampled packet.

Syntax

- **default sflow max-header-size**
- **sflow max-header-size <64-256>**

Command Parameters

<64-256>

Identifies the maximum number of bytes to be copied from the sampled packet.

Default

The default is 128.

Command Mode

GigabitEthernet Interface Configuration

sflow sampling-rate

Configures the packet sampling rate on a port.

Syntax

- **default sflow sampling-rate**
- **no sflow sampling-rate**
- **sflow sampling-rate <1024-1000000>**

Command Parameters

<1024-1000000>

Configures the packet sampling rate on a port.

Default

The default is 0, which means sFlow is disabled on the port.

Command Mode

GigabitEthernet Interface Configuration

shutdown

Disable an Ethernet module before you remove it from the chassis to minimize traffic loss. Traffic does not flow on a disabled module.

Syntax

- **default shutdown**
- **default shutdown port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **no shutdown**
- **no shutdown port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **shutdown**
- **shutdown port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

port <*{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*>

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

GigabitEthernet Interface Configuration

slpp (for a port)

Enable Simple Loop Prevention Protocol (SLPP) by port to detect a loop and automatically stop it.

Syntax

- **default slpp**
- **default slpp packet-rx**
- **default slpp packet-rx-threshold**
- **default slpp port {slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]}**
- **default slpp port {slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]} packet-rx**
- **default slpp port {slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]} packet-rx-threshold**
- **no slpp**
- **no slpp packet-rx**
- **no slpp port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/ all][all]}**
- **no slpp port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/ all][all]} packet-rx**
- **slpp packet-rx**
- **slpp packet-rx-threshold <1-500>**
- **slpp port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all] [all]} packet-rx**
- **slpp port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all] [all]} packet-rx-threshold <1-500>**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

packet-rx

Enables or disables SLPP packet reception on the port. The default is disabled.

packet-rx-threshold <1-500>

Specifies the SLPP reception threshold on the ports, expressed as an integer. The packet reception threshold specifies the number of SLPP packets the port receives before it is administratively disabled.

Caution

Configure the rx-threshold above 50 ms only on lightly loaded switches. If you configure the rx-threshold to a value greater than 50 ms on a heavily loaded switch and a loop occurs, the system can experience high CPU utilization. The default is 1.

Default

None

Command Mode

GigabitEthernet Interface Configuration

slpp-guard (for a port)

Configures SLPP Guard for switch ports.

Syntax

- **default slpp-guard**
- **default slpp-guard port {slot/port[/sub-port][-slot/port[/sub-port]] [,...][slot/all][all]} enable**
- **default slpp-guard port {slot/port[/sub-port][-slot/port[/sub-port]] [,...][slot/all][all]} timeout**
- **default slpp-guard timeout**
- **no slpp-guard**
- **no slpp-guard enable**
- **no slpp-guard port {slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]} enable**
- **no slpp-guard port {slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]} timeout**
- **no slpp-guard timeout**
- **slpp-guard enable**
- **slpp-guard port {slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]} enable**

- **slpp-guard port {slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]} timeout**
- **slpp-guard timeout <0 | 10–65535>**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

enable

Enables SLPP Guard on a port. The default is disabled.

timeout <0 | 10–65535>

Specifies the time period, in seconds, for which SLPP Guard disables the port. After the timeout period expires, the switch reenables the port. The timeout value can be 0 or a value ranging from 10 to 65535. With a value of 0, the port remains disabled until it is manually re-enabled. The default timeout value is 60 seconds.

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

snmp trap link-status

Enable link trap on the port.

Syntax

- **default snmp trap link-status**
- **default snmp trap link-status port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **no snmp trap link-status**
- **no snmp trap link-status port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

- **snmp trap link-status**
- **snmp trap link-status enable**
- **snmp trap link-status port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **snmp trap link-status port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} enable**

Command Parameters

enable

Enables or disables link-trap status for the port.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

The default is enabled.

Command Mode

GigabitEthernet Interface Configuration

source-mac-vlan

Enable source MAC-based VLAN on the port.

Syntax

- **default source-mac-vlan**
- **default source-mac-vlan enable**
- **default source-mac-vlan port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **no source-mac-vlan**
- **no source-mac-vlan enable**

- **no source-mac-vlan port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **source-mac-vlan**
- **source-mac-vlan enable**
- **source-mac-vlan port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

enable

Enables or disables source MAC-based VLAN for the port.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

The default is enabled.

Command Mode

GigabitEthernet Interface Configuration

spanning-tree bpduguard

Configures spanning-tree BPDU Guard configuration.

Syntax

- **spanning-tree bpduguard enable**
- **spanning-tree bpduguard port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} enable**
- **spanning-tree bpduguard port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} timeout <0-65535>**
- **spanning-tree bpduguard timeout <0-65535>**

Command Parameters

enable

Enables BPDU Guard on the port. The default is disabled.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all] [all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

timeout <0-65535>

Specifies the value to use for port-state recovery. After a BPDU Guard disables a port, the port remains in the disabled state until this timer expires. You can configure a value from 10 to 65535. The default is 120 seconds.

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

spanning-tree mstp allow-rstp-migration enable

Configure the port to operate in RSTP mode and send RSTP BPDUs on the port.

Syntax

- **default spanning-tree mstp allow-rstp-migration**
- **[no] spanning-tree mstp allow-rstp-migration enable**

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

spanning-tree mstp restricted-role enable

Enable MSTP Restricted Role (Root Guard) to ensure ports do not accept superior BPDUs or claims from other non-root bridges trying to become the root bridge.

Syntax

- **spanning-tree mstp restricted-role enable**
- **no spanning-tree mstp restricted-role enable**
- **default spanning-tree mstp restricted-role**

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

spanning-tree mstp restricted-tcn enable

Enable Restricted TCN to stop a switch port from propagating topology change notifications to other ports.

Syntax

- **spanning-tree mstp restricted-tcn enable**
- **no spanning-tree mstp restricted-tcn enable**
- **default spanning-tree mstp restricted-tcn**

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

spanning-tree mstp cost

Configure the contribution of this port to the path cost value for the link.

Syntax

- **default spanning-tree mstp cost**
- **spanning-tree mstp cost <1-200000000>**

Command Parameters

<1-200000000>

Specifies the cost value. The default is 2000000.

Default

The default is 2000000.

Command Mode

GigabitEthernet Interface Configuration

spanning-tree mstp edge-port

Configure the port as an edge port.

Syntax

- **default spanning-tree mstp edge-port**
- **spanning-tree mstp edge-port { false | true }**

Command Parameters

<false|true>

Enables or disables the port as an edge port.

Default

The default is disabled (false).

Command Mode

GigabitEthernet Interface Configuration

spanning-tree mstp force-port-state

Enable the force-port-state flag.

Syntax

- **default spanning-tree mstp force-port-state**
- **no spanning-tree mstp force-port-state**
- **no spanning-tree mstp force-port-state enable**
- **spanning-tree mstp force-port-state enable**

Default

The default is enabled.

Command Mode

GigabitEthernet Interface Configuration

spanning-tree mstp hello-time (on a port)

Configure the hello-time delay for the port.

Syntax

- **default spanning-tree mstp hello-time**
- **spanning-tree mstp hello-time <100-1000>**

Command Parameters

<100-1000>

Configures the hello-time for a port in one hundredths of a second. The default is 2.

Default

The default is 2.

Command Mode

GigabitEthernet Interface Configuration

spanning-tree mstp msti (on a port)

Configure Multiple Spanning Tree Protocol (MSTP) to set the MSTP configuration version.

Syntax

- **default spanning-tree mstp msti <1-63> cost**
- **default spanning-tree mstp msti <1-63> force-port-state enable**
- **default spanning-tree mstp msti <1-63> port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} cost**
- **default spanning-tree mstp msti <1-63> port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} force-port-state enable**
- **default spanning-tree mstp msti <1-63> port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} priority**

- **default spanning-tree mstp msti <1-63> priority**
- **no spanning-tree mstp msti <1-63> force-port-state enable**
- **no spanning-tree mstp msti <1-63> port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} force-port-state enable**
- **spanning-tree mstp msti <1-63> cost <1-200000000>**
- **spanning-tree mstp msti <1-63> force-port-state enable**
- **spanning-tree mstp msti <1-63> port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} cost <1-200000000>**
- **spanning-tree mstp msti <1-63> port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} force-port-state enable**
- **spanning-tree mstp msti <1-63> port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} priority <0-240>**
- **spanning-tree mstp msti <1-63> priority <0-240>**

Command Parameters

<1-63>

Specifies the instance parameter.

cost <1-200000000>

Configures the path cost for the port

force-port-state enable

Enables MSTI learning for the port.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

priority <0-65535>

Configures the MSTP bridge priority. Allowed values are 4096, 8192, 12288, 16384, 20480, 24576, 28672, 32768, 36864, 40960,45056, 49152, 53248, 57344, 61440.

Default

None

Command Mode

GigabitEthernet Interface Configuration

spanning-tree mstp p2p

Specify the point-to-point status of the LAN segment attached to this port.

Syntax

- **default spanning-tree mstp p2p**
- **spanning-tree mstp p2p auto**
- **spanning-tree mstp p2p force-false**
- **spanning-tree mstp p2p force-true**

Command Parameters

<auto|force-false|false-true>

A value of force-true indicates that this port is treated as if it connects to a point-to-point link.

A value of force-false indicates that this port is treated as having a shared media connection.

A value of auto indicates that this port is considered to have a point-to-point link if it is an aggregator and all of its members are aggregatable, or if the MAC entity is configured for full-duplex operation, either through autonegotation or by management means.

The default is auto.

Default

The default is auto.

Command Mode

GigabitEthernet Interface Configuration

spanning-tree mstp port

Configure all Multiple Spanning Tree Protocol (MSTP) parameters for a port.

Syntax

- **default spanning-tree mstp**
- **default spanning-tree mstp port {slot/port[/sub-port]}**
- **default spanning-tree mstp port {slot/port[/sub-port]} cost**

- **default spanning-tree mstp port {slot/port[/sub-port]} edge-port**
- **default spanning-tree mstp port {slot/port[/sub-port]} force-port-state**
- **default spanning-tree mstp port {slot/port[/sub-port]} hello-time**
- **default spanning-tree mstp port {slot/port[/sub-port]} p2p**
- **default spanning-tree mstp port {slot/port[/sub-port]} priority**
- **default spanning-tree mstp port {slot/port[/sub-port]} protocol-migration**
- **no spanning-tree mstp**
- **no spanning-tree mstp port {slot/port[/sub-port]}**
- **spanning-tree mstp port {slot/port[/sub-port]} cost <1-200000000>**
- **spanning-tree mstp port {slot/port[/sub-port]} edge-port { false | true }**
- **spanning-tree mstp port {slot/port[/sub-port]} force-port-state enable**
- **spanning-tree mstp port {slot/port[/sub-port]} hello-time <100-1000>**
- **spanning-tree mstp port {slot/port[/sub-port]} p2p auto**
- **spanning-tree mstp port {slot/port[/sub-port]} p2p force-false**
- **spanning-tree mstp port {slot/port[/sub-port]} p2p force-true**
- **spanning-tree mstp port {slot/port[/sub-port]} priority <0-240>**
- **spanning-tree mstp port {slot/port[/sub-port]} protocol-migration false**
- **spanning-tree mstp port {slot/port[/sub-port]} protocol-migration true**

Command Parameters

<0-240>

Specifies the four most significant bits of the port identifier. The values configured for port priority must be in steps of 16.

<100-1000>

Configures the hello-time for a port in one hundredths of a second.

<1-200000000>

Specifies the cost value.

<auto|force-false|false-true>

A value of force-true indicates that this port is treated as if it connects to a point-to-point link.

A value of force-false indicates that this port is treated as having a shared media connection.

A value of auto indicates that this port is considered to have a point-to-point link if it is an aggregator and all of its members are aggregatable, or if the MAC

entity is configured for full-duplex operation, either through autonegotation or by management means.

edge-port <false|true>

Enables or disables the port as an edge port. The default is disabled (false).

port *{slot/port[/sub-port]}*

Identifies a single slot and port. If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

protocol-migration <false|true>

Configures the protocol migration state of this port. The default is false.

Default

None

Command Mode

GigabitEthernet Interface Configuration

spanning-tree mstp priority (on a port)

Specify the four most significant bits of the port identifier for a given spanning tree instance that can be modified independently for each spanning tree instance supported by the bridge.

Syntax

- **default spanning-tree mstp priority**
- **spanning-tree mstp priority <0-240>**

Command Parameters

<0-240>

Specifies the four most significant bits of the port identifier. The values configured for port priority must be in steps of 16.

Default

The default is 128.

Command Mode

GigabitEthernet Interface Configuration

spanning-tree mstp protocol-migration

Initiates or terminates protocol migration for the port. If enabled, the port transmits BPDUs without instance information.

Syntax

- **default spanning-tree mstp protocol-migration**
- **spanning-tree mstp protocol-migration false**
- **spanning-tree mstp protocol-migration true**

Command Parameters

<false|true>

Configures the protocol migration state of this port.

Default

The default is false.

Command Mode

GigabitEthernet Interface Configuration

spanning-tree rstp cost

Configure the contribution of this port to the path cost value for the link.

Syntax

- **default spanning-tree rstp cost**
- **spanning-tree rstp cost <1-200000000>**

Command Parameters

<1-200000000>

Specifies the cost value.

Default

The default is 2000000.

Command Mode

GigabitEthernet Interface Configuration

spanning-tree rstp edge-port

Configure the port as an edge port.

Syntax

- **default spanning-tree rstp edge-port**
- **spanning-tree rstp edge-port { false | true }**

Command Parameters

<false|true>

Enables or disables the port as an edge port.

Default

The default is disabled (false).

Command Mode

GigabitEthernet Interface Configuration

spanning-tree rstp p2p

Specify the point-to-point status of the LAN segment attached to this port.

Syntax

- **default spanning-tree rstp p2p**
- **spanning-tree rstp p2p auto**
- **spanning-tree rstp p2p force-false**
- **spanning-tree rstp p2p force-true**

Command Parameters

<auto|force-false|false-true>

A value of force-true indicates that this port is treated as if it connects to a point-to-point link.

A value of force-false indicates that this port is treated as having a shared media connection.

A value of auto indicates that this port is considered to have a point-to-point link if it is an aggregator and all of its members are aggregatable, or if the MAC entity is configured for full-duplex operation, either through autonegotation or by management means.

Default

The default is auto.

Command Mode

GigabitEthernet Interface Configuration

spanning-tree rstp port

Configure all Rapid Spanning Tree Protocol (RSTP) parameters for a port.

Syntax

- **default spanning-tree rstp**
- **default spanning-tree rstp**
- **default spanning-tree rstp port {slot/port[/sub-port]}**
- **no spanning-tree rstp**
- **no spanning-tree rstp port {slot/port[/sub-port]}**
- **spanning-tree rstp port {slot/port[/sub-port]} cost <1-200000000>**
- **spanning-tree rstp port {slot/port[/sub-port]} edge-port { false | true }**
- **spanning-tree rstp port {slot/port[/sub-port]} p2p auto**
- **spanning-tree rstp port {slot/port[/sub-port]} p2p force-false**
- **spanning-tree rstp port {slot/port[/sub-port]} p2p force-true**
- **spanning-tree rstp port {slot/port[/sub-port]} priority <0-240>**
- **spanning-tree rstp port {slot/port[/sub-port]} protocol-migration false**
- **spanning-tree rstp port {slot/port[/sub-port]} protocol-migration true**
- **spanning-tree rstp port {slot/port[/sub-port]} stp enable**

Command Parameters

cost <1-200000000>

Specifies the cost value. The default is 2000000.

edge-port <false|true>

Enables or disables the port as an edge port. The default is disabled (false).

p2p <auto|force-false|false-true>

A value of force-true indicates that this port is treated as if it connects to a point-to-point link.

A value of force-false indicates that this port is treated as having a shared media connection.

A value of auto indicates that this port is considered to have a point-to-point link if it is an aggregator and all of its members are aggregatable, or if the MAC entity is configured for full-duplex operation, either through autonegotation or by management means.

The default is auto.

port *{slot/port[/sub-port]}*

Identifies a single slot and port. If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

priority <0-240>

Specifies the four most significant bits of the port identifier. The values configured for port priority must be in steps of 16. The default is 128.

protocol-migration <false|true>

Configures the protocol migration state of this port. The default is false.

stp enable

Enables STP for the port. The default is disabled.

Default

None

Command Mode

GigabitEthernet Interface Configuration

spanning-tree rstp priority (on a port)

Specify the four most significant bits of the port identifier for a given spanning tree instance that can be modified independently for each spanning tree instance supported by the bridge.

Syntax

- **default spanning-tree rstp priority**
- **spanning-tree rstp priority <0-240>**

Command Parameters

<0-240>

Specifies the four most significant bits of the port identifier. Assigns RSTP bridge priority in a range of 0-240. The values configured for port priority must be in steps of 16.

Default

The default is 128.

Command Mode

GigabitEthernet Interface Configuration

spanning-tree rstp protocol-migration

Initiate or terminate protocol migration for the port. If enabled, the port transmits BPDUs without instance information.

Syntax

- **default spanning-tree rstp protocol-migration**
- **spanning-tree rstp protocol-migration false**
- **spanning-tree rstp protocol-migration true**

Command Parameters

<false|true>

Configures the protocol migration state of this port.

Default

The default is false.

Command Mode

GigabitEthernet Interface Configuration

spanning-tree rstp stp

Enable STP on the port.

Syntax

- **default spanning-tree rstp stp**
- **no spanning-tree rstp stp enable**
- **spanning-tree rstp stp enable**

Default

The default value is enabled.

Command Mode

GigabitEthernet Interface Configuration

speed

Configure the speed of the port on the Ethernet modules.

Note
Not all parameters appear on all hardware platforms.

Syntax

- **default speed [port {slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]}]**
- **speed [port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}] <10 | 100 | 1000 | 10000 | 2500 | 25000 | 5000>**

Command Parameters

<10|100|1000|10000|2500|25000|5000>

Specifies the port speed.

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

GigabitEthernet Interface Configuration

Usage Guidelines

You cannot use this command on VIMs that support the sys vim-speed on page 713 or sys vim-speed group on page 714commands.

spoof-detect

Configure the spoof detection to prevent an IP spoofing.

Syntax

- **default spoof-detect**
- **default spoof-detect enable**
- **default spoof-detect port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **no spoof-detect**
- **no spoof-detect enable**
- **no spoof-detect port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **no spoof-detect port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} enable**
- **spoof-detect**
- **spoof-detect enable**
- **spoof-detect port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

enable

Enables spoof detection on the port.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

subnet-vlan

Enable subnet-based VLAN on the port.



Note
This command does not appear on all hardware platforms.

Syntax

- **default subnet-vlan**
- **default subnet-vlan enable**
- **default subnet-vlan port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **no subnet-vlan**
- **no subnet-vlan enable**
- **no subnet-vlan port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **subnet-vlan**
- **subnet-vlan enable**
- **subnet-vlan port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

enable

Enables or disables subnet-based VLAN for the port.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

The default is enabled.

Command Mode

GigabitEthernet Interface Configuration

tagged-frames-discard

Discards tagged frames on the port.

Syntax

- **default tagged-frames-discard**
- **default tagged-frames-discard enable**
- **default tagged-frames-discard port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **default tagged-frames-discard port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} enable**
- **no tagged-frames-discard**
- **no tagged-frames-discard enable**
- **no tagged-frames-discard port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **no tagged-frames-discard port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} enable**
- **tagged-frames-discard**
- **tagged-frames-discard enable**
- **tagged-frames-discard port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **tagged-frames-discard port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} enable**

Command Parameters

enable

Discards tagged frames on the port.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)

- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine User Guide*.

tx-flow-control

Enable TX flow control for TX to transmit the MAC control PAUSE frames to indicate congestion on the receive side of the port interface. Flow control can only be enabled on 1 Gbit/s and 10 Gbit/s ports. Flow control cannot be enabled for ports that run at less than 1 Gbit/s.

Syntax

- **default tx-flow-control**
- **default tx-flow-control enable**
- **default tx-flow-control port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **default tx-flow-control port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} enable**
- **no tx-flow-control**
- **no tx-flow-control enable**
- **no tx-flow-control port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **no tx-flow-control port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} enable**
- **tx-flow-control**
- **tx-flow-control enable**

- **tx-flow-control port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **tx-flow-control port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} enable**

Command Parameters

enable

Enables the TX flow control on the module.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

untagged-frames-discard

Configure a tagged port to discard all untagged packets so that the frame is not classified into the default VLAN for the port.

Syntax

- **default untagged-frames-discard**
- **default untagged-frames-discard port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **no untagged-frames-discard**

- **no untagged-frames-discard port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **untagged-frames-discard**
- **untagged-frames-discard port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

GigabitEthernet Interface Configuration

untag-port-default-vlan

Untag the default VLAN on the port.

Syntax

- **default untag-port-default-vlan**
- **default untag-port-default-vlan enable**
- **default untag-port-default-vlan port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **no untagged-frames-discard**
- **no untagged-frames-discard port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **no untag-port-default-vlan**
- **no untag-port-default-vlan enable**

- **no untag-port-default-vlan port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **untag-port-default-vlan**
- **untag-port-default-vlan enable**
- **untag-port-default-vlan port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

enable

Untags the default VLAN for the port.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

The default is disabled.

Command Mode

GigabitEthernet Interface Configuration

vlacp

Configure Virtual Link Aggregation Control Protocol (VLACP) on a port to ensure that there is end-to-end reachability.

Syntax

- **default vlacp**
- **default vlacp enable**
- **default vlacp ethertype**
- **default vlacp fast-periodic-time**
- **default vlacp flap-frequency**

- **default vlacp flap-interval**
- **default vlacp funcmac-addr**
- **default vlacp slow-periodic-time**
- **default vlacp timeout**
- **default vlacp timeout-scale**
- **no vlacp**
- **no vlacp enable**
- **vlacp enable**
- **vlacp ethertype <1536-65535 | 0x600-0xffff>**
- **vlacp flap-frequency <3-30>**
- **vlacp flap-interval <10-600>**
- **vlacp fast-periodic-time <100-20000>**
- **vlacp funcmac-addr 0x00:0x00:0x00:0x00:0x00:0x00**
- **vlacp slow-periodic-time <10000-30000>**
- **vlacp timeout long**
- **vlacp timeout short**
- **vlacp timeout-scale <2-10>**

Command Parameters

enable

Enables VLACP for this port.

ethertype <0X600-0Xffff>

Configures the VLACP protocol identification for this port.

fast-periodic-time <100-20000>

Configures the fast periodic time (in milliseconds) for this port.

flap-frequency <3-30>

Configures the frequency of VLACP flaps allowed in a specific time interval for the VLACP Flap Detect and Damping feature. The default value is 3.

flap-interval <10-600>

Configures the time interval (in seconds) to record the VLACP flaps on ports. The default value is 60 seconds.

funcmac-addr <0x00:0x00:0x00:0x00:0x00:0x00>

Configures the multicast MAC address used for the VLACPDU. Specify a MAC address in the format 0x00:0x00:0x00:0x00:0x00:0x00. The default is 01:80:c2:00:11:00.

slow-periodic-time <10000-30000>

Configures the slow periodic time (in milliseconds) for a specific port type.

timeout {long|short}

Configures the port to use the long or short timeout:

- Long configures the port to use the timeout-scale value multiplied by the slow-periodic-time.
- Short configures the port to use the timeout-scale value multiplied by the fast-periodic-time.

For example, if you specify a short timeout, configure the timeout-scale value to 3, and the fast-periodic-time to 400 ms, the timer will expire within 1000 to 1200 ms. To configure this option to the default value, use the default operator with the command.

timeout-scale <2-10>

Configures a timeout scale for this port used to calculate the timeout. The default value is 3. To configure this option to the default value, use the default operator with the command.

Default

None

Command Mode

GigabitEthernet Interface Configuration

Usage Guidelines

Use the following information to prevent flooding VLACP packets across a defaulted switch:

- Use the default MAC address, 01:80:c2:00:11:00, for end-to-end connections that traverse an intermediate network.
- Use the reserved multicast MAC address 01-80-c2-00-00-0f for directly-connected, peer-to-peer links.

vlacp flap-detect enable

Enables the VLACP Flap Detect and Damping feature on the port.

Syntax

- **default vlacp flap-detect enable**
- **no vlacp flap-detect enable**
- **vlacp flap-detect enable**

Default

The default configuration is disabled.

Command Mode

GigabitEthernet Interface Configuration

Usage Guidelines

- Do not enable VLACP Flap Detect and Damping on Link Aggregation Control Protocol (LACP) enabled ports.
- Do not enable VLACP Flap Detect and Damping interswitch Trunking (IST).

vrf (for a port)

Associate a port to a Virtual Router Forwarding (VRF) so that the port becomes a member of the VRF instance.

Syntax

- **no vrf**
- **vrf WORD<1-16>**

Command Parameters

vrf WORD<1-16>

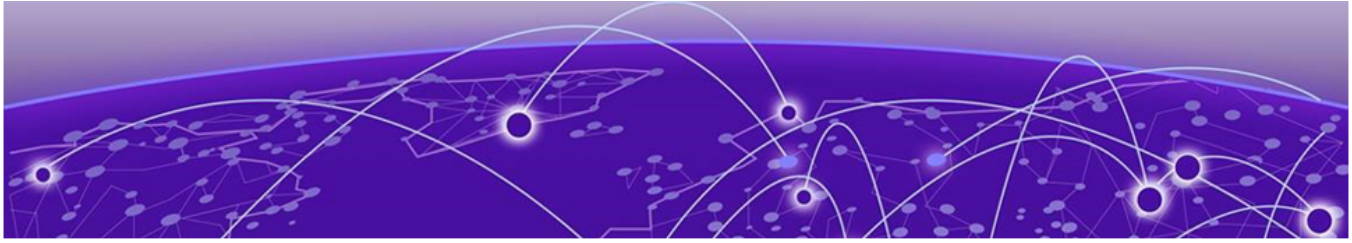
Specifies the VRF name.

Default

None

Command Mode

GigabitEthernet Interface Configuration



Global Configuration

The following topics document commands available in Global Configuration mode of the command line interface (CLI).

access-policy

Configure an access policy to control access to the switch. You can define network stations that are explicitly allowed to access the switch or network stations that are explicitly forbidden to access the switch.

For each service, you can also specify the level of access; for example, read-only or read/write/all. Use the command without parameters to globally enable access policies.

Syntax

- **access-policy**
- **access-policy <1-65535>**
- **default access-policy**
- **default access-policy <1-65535>**
- **no access-policy**
- **no access-policy <1-65535>**

Command Parameters

<1-65535>

Specifies the policy ID.

Default

None

Command Mode

Global Configuration

access-policy <1-65535> accesslevel

Restrain access to criteria specified in the access policy. If true, the system accepts only the currently configured access level. If false, the system accepts access up to the configured access level.

Syntax

- **access-policy <1-65535> accesslevel { ro | rwa | rw }**
- **default access-policy <1-65535> accesslevel**

Command Parameters

{ ro | rwa | rw }

Specifies the access level.

<1-65535>

Specifies the policy ID.

Default

The default value is ro.

Command Mode

Global Configuration

access-policy <1-65535> access-strict

Specify the level of access if you configure the policy to allow access. The access-strict command ties to the **accesslevel** command. If you enable access-strict, the access policy looks at the accesslevel value, and only applies to that access level. If you disable access-strict (false), the policy looks at the accesslevel value, and then the system applies the policy to anyone with equivalent rights or higher.

Syntax

- **access-policy <1-65535> access-strict**
- **default access-policy <1-65535> access-strict**
- **no access-policy <1-65535> access-strict**

Command Parameters

<1-65535>

Specifies the policy ID.

Default

The default value is disabled (false).

Command Mode

Global Configuration

access-policy <1-65535> enable

Activate the access policy.

Syntax

- **access-policy <1-65535> enable**
- **default access-policy <1-65535> enable**
- **no access-policy <1-65535> enable**

Command Parameters

<1-65535>

Specifies the policy ID.

Default

The default is disabled (off).

Command Mode

Global Configuration

access-policy <1-65535> ftp

Activate or disable FTP for the specified policy. Because FTP derives its login and password from the CLI management filters, FTP works for read-write-all (rwa) and readwrite (rw) access but not for the read-only (ro) access.

Syntax

- **access-policy <1-65535> ftp**
- **default access-policy <1-65535> ftp**
- **no access-policy <1-65535> ftp**

Command Parameters

<1-65535>

Specifies the policy ID.

Default

The default is disabled.

Command Mode

Global Configuration

access-policy <1-65535> host

Specify the trusted host address for the access policy.

Syntax

- **access-policy <1-65535> host WORD<0-46>**
- **default access-policy <1-65535> host**
- **no access-policy <1-65535> host**

Command Parameters

<1-65535>

Specifies the policy ID.

WORD<0-46>

Specifies the IPv4 or IPv6 address.

Default

None

Command Mode

Global Configuration

access-policy <1-65535> http

Activate the HTTP for this access policy.

Syntax

- **access-policy <1-65535> http**
- **default access-policy <1-65535> http**
- **no access-policy <1-65535> http**

Command Parameters

<1-65535>

Specifies the policy ID.

Default

The default is disabled.

Command Mode

Global Configuration

access-policy <1-65535> mode

Specify whether the designated network address is allowed access to the system through the specified access service.

Syntax

- **access-policy <1-65535> mode { allow | deny }**
- **default access-policy <1-65535> mode**

Command Parameters

{ allow | deny }

Allows or denies access to the designated network address.

<1-65535>

Specifies the policy ID.

Default

The default is allow.

Command Mode

Global Configuration

access-policy <1-65535> name

Specify a name expressed as a string.

Syntax

- **access-policy <1-65535> name WORD<0-15>**
- **default access-policy <1-65535> name**

Command Parameters

<1-65535>

Specifies the policy ID.

Default

None

Command Mode

Global Configuration

access-policy <1-65535> network

Specify the IP address and subnet mask that can access the system through the specified access service.

Syntax

- **access-policy <1-65535> network WORD<1-46> <0-128>**
- **default access-policy <1-65535> network**
- **no access-policy <1-65535> network**

Command Parameters

<1-65535>

Specifies the policy ID.

WORD<1-46> <0-128>

Specifies the IP address and subnet mask

Default

None

Command Mode

Global Configuration

access-policy <1-65535> precedence

Specify a precedence value for a policy, expressed as a number from 1-128. The precedence value determines which policy the system uses if multiple policies apply. Lower numbers take higher precedence.

Syntax

- **access-policy <1-65535> precedence <1-128>**
- **default access-policy <1-65535> precedence**

Command Parameters

<1-128>

Specifies a precedence value for a policy.

<1-65535>

Specifies the policy ID.

Default

The default is 10.

Command Mode

Global Configuration

access-policy <1-65535> snmp-group

Add a Simple Network Management Protocol version 3 (SNMP-v3) group under the access policy.

Syntax

- **access-policy <1-65535> snmp-group WORD<1-32> { snmpv1 | snmpv2c | usm }**
- **no access-policy <1-65535> snmp-group WORD<1-32> { snmpv1 | snmpv2c | usm }**

Command Parameters

{ snmpv1 | snmpv2c | usm }

Configures the security model.

<1-65535>

Specifies the policy ID.

WORD<1-32>

Specifies the name of the group.

Default

None

Command Mode

Global Configuration

access-policy <1-65535> snmpv3

Activate Simple Network Management Protocol (SNMP) version 3 for the access policy.

Syntax

- **access-policy <1-65535> snmpv3**
- **default access-policy <1-65535> snmpv3**
- **no access-policy <1-65535> snmpv3**

Command Parameters

<1-65535>

Specifies the policy ID.

Default

The default is disabled.

Command Mode

Global Configuration

access-policy <1-65535> ssh

Activate Secure Shell (SSH) for the access policy.

Syntax

- **access-policy <1-65535> ssh**
- **default access-policy <1-65535> ssh**
- **no access-policy <1-65535> ssh**

Command Parameters

<1-65535>

Specifies the policy ID.

Default

The default is disabled.

Command Mode

Global Configuration

access-policy <1-65535> telnet

Activate Telnet for the access policy.

Syntax

- **access-policy <1-65535> telnet**
- **default access-policy <1-65535> telnet**
- **no access-policy <1-65535> telnet**

Command Parameters

<1-65535>

Specifies the policy ID.

Default

The default is disabled.

Command Mode

Global Configuration

access-policy <1-65535> tftp

Activate the Trivial File Transfer Protocol (TFTP) for this access policy.

Syntax

- **access-policy <1-65535> tftp**
- **default access-policy <1-65535> tftp**
- **no access-policy <1-65535> tftp**

Command Parameters

<1-65535>

Specifies the policy ID.

Default

The default is disabled.

Command Mode

Global Configuration

access-policy by-mac

Configure access-policies by MAC address to allow or deny local MAC addresses on the network management port after an access policy is activated. If the source MAC does not match a configured entry, then the default action is taken.

Syntax

- **access-policy by-mac 0x00:0x00:0x00:0x00:0x00:0x00 { allow | deny }**
- **access-policy by-mac action { allow | deny }**
- **default access-policy by-mac <0x00:0x00:0x00:0x00:0x00:0x00>**
- **default access-policy by-mac action**
- **no access-policy by-mac <0x00:0x00:0x00:0x00:0x00:0x00>**

Command Parameters

<0x00:0x00:0x00:0x00:0x00: 0x00:0x00> <allow|deny>

Adds a MAC address to the policy. Enter the MAC address in hexadecimal format. Specify the action to take for the MAC address.

action <allow|deny>

Specifies the action for a MAC address that does not match the policy.

Default

The default action is allow.

Command Mode

Global Configuration

application

Enter Application mode.

Syntax

- **application**

Default

None

Command Mode

Global Configuration

app-telemetry enable

Enables Application Telemetry.

Syntax

- **no app-telemetry enable**

Default

The default value is disable.

Command Mode

Global Configuration

auto-recover-delay

Set the time delay for the automatic recovery of ports.

Syntax

- **auto-recover-delay <5-3600>**
- **default auto-recover-delay**
- **no auto-recover-delay <5-3600>**

Command Parameters

<5-3600>

Specifies the range to be set for the auto-recovery of ports in seconds. The range varies between 5 to 3600 seconds.

Default

The default is 30.

Command Mode

Global Configuration

autotopology

Configure the SynOptics Network Management Protocol (SONMP) to allow a network management station (NMS) formulate a map that shows the interconnections between Layer 2 devices in a network.

Syntax

- **autotopology**
- **default autotopology**
- **no autotopology**

Default

When a device boots in Zero Touch Deployment (ZTD) mode, SONMP (also known as autotopology) is disabled by default. The first **save config** after ZTD boot includes **no autotopology** in the running configuration. The CLI and MIB default remains enabled.

Command Mode

Global Configuration

auto-sense access-diffserv

Configures the ports operating in Auto-sense mode to determine the Layer 3 QoS actions the switch performs. The Auto-sense access ports override the Differentiated Services Code Point (DSCP) markings.

Syntax

- **auto-sense access-diffserv [enable]**
- **default auto-sense access-diffserv [enable]**
- **no auto-sense access-diffserv [enable]**

Command Parameters

enable

Specifies access ports that are operating in Auto-sense mode.

Default

The default is enabled.

Command Mode

Global Configuration

auto-sense auto-mlt enable

Enables automatic link aggregation (Auto-MLT) to automatically aggregate NNI links on Auto-sense ports into an MLT to form IS-IS adjacencies.

Syntax

- **auto-sense auto-mlt enable**
- **default auto-sense auto-mlt enable**
- **no auto-sense auto-mlt enable**

Default

The default is enabled in Zero Touch Deployment mode, when the switch has no configuration file. Otherwise, the default is disabled.

Command Mode

Global Configuration

auto-sense data (globally)

Configures Auto-sense data traffic information.

Syntax

- **auto-sense data i-sid <1-15999999>**
- **no auto-sense data i-sid**

Command Parameters

i-sid <1-15999999>

Specifies the service interface identifier (I-SID).

Default

None.

Command Mode

Global Configuration

auto-sense dhcp-detection

Configures the dhcp server detection in Auto-sense mode.

Syntax

- **auto-sense dhcp-detection**
- **no auto-sense dhcp-detection**
- **default auto-sense dhcp-detection**

Default

The default is enabled.

Command Mode

Global Configuration

auto-sense eapol multihost eap-mac-max

Configures maximum EAPoL clients allowed on ports that are operating in Auto-sense mode.

Syntax

- **default auto-sense eapol multihost eap-mac-max**
- **auto-sense eapol multihost eap-mac-max <0-32>**

Command Parameters

<0-32>

Specifies the maximum EAPoL clients allowed on the Auto-sense enabled port at one time.

Default

The default is 4.

Command Mode

Global Configuration

auto-sense eapol multihost mac-max

Configures maximum MAC and Non EAPoL clients allowed on Auto-sense enabled ports.

Syntax

- **default auto-sense eapol multihost mac-max**

- **auto-sense eapol multihost mac-max <1-8192>**

Command Parameters

<1-8192>

Specifies the maximum number of EAP and NEAP MAC addresses allowed on the Auto-sense enabled port.

Default

The default is 4.

Command Mode

Global Configuration

auto-sense eapol multihost non-eap-mac-max

Configures maximum Non EAPoL clients allowed on ports that are operating in Auto-sense mode.

Syntax

- **default auto-sense eapol multihost non-eap-mac-max**
- **auto-sense eapol multihost non-eap-mac-max <0-8192>**

Command Parameters

<1-8192>

Specifies the maximum non-EAPoL clients allowed on the Auto-sense enabled port at one time.

Default

The default is 4.

Command Mode

Global Configuration

auto-sense eapol voice lldp-auth

Configures Link Layer Discovery Protocol (LLDP) authentication for IP phones on ports that are operating in Auto-sense mode.

Syntax

- **auto-sense eapol voice lldp-auth**
- **default auto-sense eapol voice lldp-auth**
- **no auto-sense eapol voice lldp-auth**

Default

The default is disabled.

Command Mode

Global Configuration

auto-sense fa authentication-key

Configures Fabric Attach authentication key for ports that operate in Auto-sense mode.

Syntax

- **auto-sense fa authentication-key WORD<0-32>**
- **default auto-sense fa authentication-key**

Command Parameters

WORD<0-32>

Specifies the authentication key value.

Default

None.

Command Mode

Global Configuration

auto-sense fa camera eapol status {authorized | auto}

Configures EAPoL authentication requirements for auto-sensed cameras.

Syntax

- **auto-sense fa camera eapol status {authorized | auto}**
- **default auto-sense fa camera eapol status**
- **no auto-sense fa camera eapol status**

Command Parameters

authorized

Specifies to skip EAPoL authentication and authorize the connection.

auto

Specifies that authorization depends on the result of EAPoL authentication.

Default

The default is auto.

Command Mode

Global Configuration

auto-sense fa camera i-sid <1-15999999>

Configures an I-SID for auto-sensed cameras.

Syntax

- **auto-sense fa camera i-sid <1-15999999>**
- **no auto-sense fa camera i-sid**

Default

None.

Command Mode

Global Configuration

auto-sense fa message-authentication

Configures Fabric Attach message authentication for ports that are operating in Auto-sense mode.

Syntax

- **auto-sense fa message-authentication**
- **default auto-sense fa message-authentication**
- **no auto-sense fa message-authentication**

Default

Message authentication is enabled by default.

Command Mode

Global Configuration

auto-sense fa ovs eapol status {authorized | auto}

Configures EAPoL authentication requirements for auto-sensed virtual switches.

Syntax

- **auto-sense fa ovs eapol status {authorized | auto}**
- **default auto-sense fa ovs eapol status**
- **no auto-sense fa ovs eapol status**

Command Parameters

authorized

Specifies to skip EAPoL authentication and authorize the connection.

auto

Specifies that authorization depends on the result of EAPoL authentication.

Default

The default is auto.

Command Mode

Global Configuration

auto-sense fa ovs i-sid <1-15999999>

Configures an I-SID for auto-sensed virtual switches.

Syntax

- **auto-sense fa ovs i-sid <1-15999999>**
- **no auto-sense fa ovs i-sid**

Default

None.

Command Mode

Global Configuration

auto-sense fa proxy management i-sid <1-15999999> c-vid <1-4094>

Configures a specific I-SID and customer VLAN ID to use as the management I-SID when a port is in the Auto-sense FA PROXY state.

Syntax

- **auto-sense fa proxy management i-sid <1-15999999> c-vid <1-4094>**
- **no auto-sense fa proxy management i-sid**

Default

None.

Command Mode

Global Configuration

auto-sense fa proxy-ring management i-sid <1-15999999> c-vid <1-4094>

Configures a specific I-SID and customer VLAN ID to use as the management I-SID when a port is in the Auto-sense FA PROXY RING state.

Syntax

- **auto-sense fa proxy-ring management i-sid <1-15999999> c-vid <1-4094>**
- **no auto-sense fa proxy-ring management i-sid**

Command Parameters

<1-15999999>

Specifies the service interface identifier (I-SID).

<1-4094>

Specifies the customer VLAN ID.

Default

None.

Command Mode

Global Configuration

auto-sense fa proxy-no-auth force-authentication

Configures Auto-sense to force FA authentication for devices that attach to ports in the FA PROXY NOAUTH port state.

Syntax

- **auto-sense fa proxy-no-auth force-authentication**
- **default auto-sense fa proxy-no-auth force-authentication**
- **no auto-sense fa proxy-no-auth force-authentication**

Default

The default is disabled.

Command Mode

Global Configuration

auto-sense fa proxy-no-auth i-sid <1-15999999>

Configures an I-SID for auto-sensed client switches that do not use Fabric Attach (FA) message authentication, such as EXOS or Switch Engine.

Syntax

- **auto-sense fa proxy-no-auth i-sid <1-15999999>**
- **no auto-sense fa proxy-no-auth i-sid**

Default

None.

Command Mode

Global Configuration

auto-sense fa wap-type1 eapol status {authorized | auto}

Configures EAPoL authentication requirements for auto-sensed wireless access points (WAP).

Syntax

- **auto-sense fa wap-type1 eapol status {authorized | auto}**
- **default auto-sense fa wap-type1 eapol status**

- **no auto-sense fa wap-type1 eapol status**

Command Parameters

authorized

Specifies to skip EAPoL authentication and authorize the connection.

auto

Specifies that authorization depends on the result of EAPoL authentication.

Default

The default is auto.

Command Mode

Global Configuration

auto-sense fa wap-type1 i-sid <1-15999999>

Configures an I-SID for auto-sensed wireless access points (WAP).

Syntax

- **auto-sense fa wap-type1 i-sid <1-15999999>**
- **no auto-sense fa wap-type1 i-sid**

Default

None.

Command Mode

Global Configuration

auto-sense guest-isid enable

Configures guest I-SID functionality on Auto-sense ports to either allow or block Auto-sense from applying guest or fail-open I-SIDs if the RADIUS server fails to respond.

Syntax

- **auto-sense guest-isid enable**
- **no auto-sense guest-isid enable**

Default

If the switch boots in Zero Touch Deployment mode, the Auto-sense guest I-SID is disabled. If the switch boots with the factorydefaults boot flag enabled, the Auto-sense guest I-SID is enabled.

Command Mode

Global Configuration

auto-sense isis hello-auth type hmac-md5

Configures HMAC-MD5 authentication type for IS-IS hello packets on ports that are operating in Auto-sense mode. MD5 authentication creates an encoded checksum in the transmitted packet. The receiving router uses an authentication key (password) to verify the MD5 checksum of the packet.

Syntax

- **auto-sense isis hello-auth type hmac-md5**
- **auto-sense isis hello-auth type hmac-md5 [key WORD<1-16>]**
- **auto-sense isis hello-auth type hmac-md5 key WORD<1-16> [key-id <1-255>]**
- **no auto-sense isis hello-auth**

Command Parameters

key WORD<1-16>

Specifies the authentication key (password) that the receiving router uses to verify the packet.

key-id <1-255>

Specifies the key ID.

Default

None.

Command Mode

Global Configuration

auto-sense isis hello-auth type hmac-sha-256

Configures HMAC-SHA256 authentication type for IS-IS hello packets on ports that are operating in Auto-sense mode. With SHA-256 authentication, the switch adds an HMAC-SHA256 digest to each Hello packet. The switch that receives the Hello packet

computes the digest of the packet and compares it with the received digest. If the digests match, the receiving switch accepts the packet. If the digests do not match, the receiving switch discards the packet.

Syntax

- **auto-sense isis hello-auth type hmac-sha-256**
- **auto-sense isis hello-auth type hmac-sha-256 [key WORD<1-16>]**
- **auto-sense isis hello-auth type hmac-sha-256 key WORD<1-16> [key-id <1-255>]**
- **no auto-sense isis hello-auth**

Command Parameters

key WORD<1-16>

Specifies the authentication key (password) that the receiving router uses to verify the packets.

key-id <1-255>

Specifies the key ID.

Default

None.

Command Mode

Global Configuration

auto-sense isis hello-auth type none

Configures the authentication type as none, for IS-IS hello packets on ports that are operating in Auto-sense mode.

Syntax

- **auto-sense isis hello-auth type none**
- **auto-sense isis hello-auth type none [key WORD<1-16>]**
- **auto-sense isis hello-auth type none key WORD<1-16> [key-id <1-255>]**
- **no auto-sense isis hello-auth**

Command Parameters

key WORD<1-16>

Specifies the authentication key (password) that the receiving router uses to verify the packet.

key-id <1-255>

Specifies the key ID.

Default

None.

Command Mode

Global Configuration

auto-sense isis hello-auth type simple

Configures simple password authentication for IS-IS hello packets on ports that are operating in Auto-sense mode. Simple password authentication uses a text password in the transmitted packet. The receiving router uses an authentication key (password) to verify the packet.

Syntax

- **auto-sense isis hello-auth type simple**
- **auto-sense isis hello-auth type simple [key WORD<1-16>]**
- **auto-sense isis hello-auth type simple key WORD<1-16> [key-id <1-255>]**
- **no auto-sense isis hello-auth**

Command Parameters

key WORD<1-16>

Specifies the authentication key (password) that the receiving router uses to verify the packet.

key-id <1-255>

Specifies the key ID.

Default

None.

Command Mode

Global Configuration

auto-sense isis l1 metric

Configures the Level 1 metric for Auto-sense.

Syntax

- **auto-sense isis l1-metric {<1-16777215>|auto}**
- **no auto-sense isis l1-metric**
- **default auto-sense isis l1-metric**

Command Parameters

<1-16777215>

Specifies the IS-IS SPBM l1-metric that is applied to all Auto-sense ports.

auto

The network route for all auto-sense ports is determined by summing the lowest value metrics, which are inversely proportional to port speed.

Default

The default is **auto**.

Command Mode

Global Configuration

auto-sense link-debounce {auto <0-300000> | off | on <0-300000>}

Configures Link Debounce on Auto-sense UNI ports.

Syntax

- **auto-sense link-debounce {auto <0-300000> | off | on <0-300000>}**
- **default auto-sense link-debounce**

Command Parameters

auto <0-300000>

Enables Link Debounce only on Auto-sense UNI ports that connect to Preboot Execution Environment (PXE) devices. The auto parameter enables Link Debounce if the port receives a DHCP DISCOVERY message with an Option 60 vendor class ID string of PXEClient:Arch:xxxxx:UNDI:yyyzzz.

<0-300000> specifies the port timer in milliseconds. The default timer is 3,000 milliseconds.

off

Disables Link Debounce on Auto-sense ports.

on <0-300000>

Enables Link Debounce on all Auto-sense UNI ports. <0-300000> specifies the port timer in milliseconds. The default timer is 3,000 milliseconds.

Default

The default is auto.

Command Mode

Global Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine User Guide*.

auto-sense onboarding

Configures the Auto-sense onboarding traffic information.

Syntax

- **auto-sense onboarding i-sid <1-15999999>**
- **no auto-sense onboarding i-sid**

Command Parameters

i-sid <1-15999999>

Specifies the service instance identifier (I-SID).

Default

The default onboarding I-SID value is 15999999.

Command Mode

Global Configuration

auto-sense qos 802.1p-override

Overrides incoming 802.1p bits on ports that are operating in Auto-sense mode.

Syntax

- **auto-sense qos 802.1p-override**
- **no auto-sense qos 802.1p-override**
- **default auto-sense qos 802.1p-override**

Default

802.1p Override is enabled by default.

Command Mode

Global Configuration

auto-sense sd-wan multi-area logical-intf-dest-ip {A.B.C.D} <home | remote>

Specifies the area in which to create a specific ExtremeCloud SD-WAN learned tunnels. This configuration overrides a global area configuration for all learned tunnels.

Syntax

- **auto-sense sd-wan multi-area logical-intf-dest-ip {A.B.C.D} <home | remote>**
- **no auto-sense sd-wan multi-area logical-intf-dest-ip {A.B.C.D}**

Default

By default, Auto-sense creates SD-WAN logical interfaces in the home area.

Command Mode

Global Configuration

Usage Guidelines

You can only use this command on a switch with boundary-node abilities.

auto-sense sd-wan multi-area remote

Creates all ExtremeCloud SD-WAN learned tunnels in the IS-IS remote area.

Syntax

- **auto-sense sd-wan multi-area remote**
- **no auto-sense sd-wan multi-area remote**

Default

By default, Auto-sense creates SD-WAN logical interfaces in the home area.

Command Mode

Global Configuration

Usage Guidelines

You can only use this command on a switch with boundary-node abilities.

auto-sense sd-wan vrf WORD<1-16>

Specifies the VRF name that Auto-sense uses for the SD-WAN configuration. On models that support a single active VRF, Auto-sense cannot create the dynamic SD-WAN VRF if an IP configuration already exists.

Syntax

- **auto-sense sd-wan vrf WORD<1-16>**
- **no auto-sense sd-wan vrf WORD<1-16>**

Default

None.

Command Mode

Global Configuration

auto-sense voice i-sid <1-15999999>

Configures Auto-sense voice information on IP phones.

Syntax

- **auto-sense voice i-sid <1-15999999> c-vid <1-4094>**
- **auto-sense voice i-sid <1-15999999> untagged**
- **no auto-sense voice**

Command Parameters

c-vid <1-4094>

Specifies the customer VLAN ID.

untagged

Specifies the VLAN tagging type as untagged.

Default

None

Command Mode

Global Configuration

auto-sense wait-interval

Configures the time, in seconds, for Auto-sense to wait for a Link Layer Discovery Protocol (LLDP) neighbor to be detected in the Auto-sense wait state before transitioning to the Auto-sense onboarding state. This configuration is a global configuration that applies to all Auto-sense ports unless you configure a specific per-port wait-interval.

Syntax

- **auto-sense wait-interval <2-120>**
- **default auto-sense wait-interval**

Command Parameters

<2-120>

Specifies the time interval, in seconds.

Default

The default value is 35 seconds.

Command Mode

Global Configuration

banner

Configure the CLI logon banner to display a warning message to users before authentication.

Syntax

- **banner custom**
- **banner displaymotd**
- **banner motd WORD<1-1516>**
- **banner static**
- **banner WORD<1-80>**
- **default banner**
- **default banner displaymotd**
- **default banner motd**
- **no banner**
- **no banner displaymotd**
- **no banner motd**

Command Parameters

custom

Activates the custom banner.

displaymotd

Activates or disables the message of the day.

motd WORD<1-1516>

Creates a message of the day to display with the logon banner. To provide a string with spaces, include the text in quotation marks ("").

static

Activates static banner.

WORD<1-80>

Adds lines of text to the CLI logon banner.

Default

The default configuration uses the default banner with no message of the day.

Command Mode

Global Configuration

boot config choice

Change the boot source order to change the order in which the system accesses the configuration files. If you change the primary source, the system uses your configuration first, and then accesses the default locations. If the default locations do not contain a configuration or backup configuration file, the system loads the default configuration.

Syntax

- **boot config choice primary backup-config-file WORD<0-255>**
- **boot config choice primary config-file WORD<0-255>**
- **default boot config choice primary**
- **default boot config choice primary backup-config-file**

Command Parameters

{backup-config-file |config-file}

Specifies that the boot source uses either the configuration file or a backup configuration file.

WORD<0-255>

Identifies the configuration file. WORD<0-255> is the device and file name, up to 255 characters including the path, in one of the following formats: a.b.c.d:<file>, or /intflash/<file>.

Default

By default, the primary source is the internal flash.

Command Mode

Global Configuration

boot config flags advanced-feature-bandwidth-reservation

Enables the switch to support advanced features such as SPB, SMLT, and vIST by reserving ports as loopback ports.

Syntax

- **boot config flags advanced-feature-bandwidth-reservation high**
- **boot config flags advanced-feature-bandwidth-reservation low**
- **boot config flags advanced-feature-bandwidth-reservation vim**
- **default boot config flags advanced-feature-bandwidth-reservation**
- **no boot config flags advanced-feature-bandwidth-reservation**

Command Parameters

high

Reserves the maximum bandwidth for the advanced features. Depending on the hardware platform, the number of reserved ports is different.

low

Reserves less bandwidth to support minimum functionality for advanced features. Depending on the hardware platform, the number of reserved ports is different.

vim

Reserves the internal Versatile Interface Module (VIM) ports as loopback ports.

Default

By default, this boot configuration flag is enabled with the following options:

- high level option for 4220 Series.
- low level option for 5320 Series, 5420 Series, 7520 Series, 7720 Series, and 7830 Series switches.
- vim level option for 5520 Series switches (if vim port is available and VIM is not installed, else low level option is enabled).
- vim level option for 5720 Series switches (if vim port is available and VIM is not installed, else high level option is enabled).

Command Mode

Global Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

If your switch does not support this boot configuration flag, it is because the hardware reserves the bandwidth automatically with no user interaction.

You must save the configuration and restart the switch for a configuration change to take effect.

You must ensure your configuration does not include reserved ports before you enable this feature. If the configuration includes reserved ports after you enable this feature and restart the switch, the switch aborts loading the configuration.

The vim parameter is only supported on the 5520 Series and 5720 Series.

The high parameter is only supported on the 4220 Series, 5720 Series, 7520 Series, and 7720 Series.

The low parameter is not supported on the 5720 Series.

boot config flags block-snmp

Activate or disable Simple Network Management Protocol (SNMP) management.

Syntax

- **boot config flags block-snmp**
- **default boot config flags block-snmp**
- **no boot config flags block-snmp**

Default

The default is disabled.

Command Mode

Global Configuration

boot config flags debug-config

Activate or disable run-time debugging of the configuration file.

Syntax

- **boot config flags debug-config**
- **boot config flags debug-config console**
- **boot config flags debug-config file**
- **default boot config flags debug-config**
- **no boot config flags debug-config**

Command Parameters

console

Displays the line-by-line configuration file processing and result of the execution on the console while the device loads the configuration file.

file

Logs the line-by-line configuration file processing and result of the execution to the debug file while the device loads the configuration file.

The system logs the debug config output to `/intflash/debugconfig_primary.txt`for the primary configuration file. The system logs the debug config output to `/intflash/ debugconfig_backup.txt` for the backup configuration, if the backup configuration file loads.

Default

The default is disabled.

Command Mode

Global Configuration

Usage Guidelines

After you enable debug-config and save the configuration, the debug output either displays on the console or logs to an output file the next time the switch reboots. You do not have to restart the switch after you enable debug-config unless you want to immediately debug the configuration.

boot config flags debugmode

Control whether the switch stops in debug mode following a fatal error. Debug mode provides information equivalent to the trace commands. If you enable this flag, the switch does not restart following a fatal error.



Important

Do not change this flag unless directed by support.

Syntax

- **boot config flags debugmode**
- **default boot config flags debugmode**
- **no boot config flags debugmode**

Default

The default is disabled.

Command Mode

Global Configuration

Usage Guidelines

You must save the configuration and reboot the switch for a configuration change to take effect.

boot config flags dvr-leaf-mode

Enables an SPB node to be configured as a DvR Leaf.

Syntax

- **boot config flags dvr-leaf-mode**
- **default boot config flags dvr-leaf-mode**

- **no boot config flags dvr-leaf-mode**

Default

The default is disabled.

Command Mode

Global Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

boot config flags enhancedsecure-mode

Enable enhanced secure mode. If you enable enhanced secure mode the switch provides role-based access levels, stronger password requirements, and stronger rules on password length, password complexity, password change intervals, password reuse, and password maximum age use.

Syntax

- **boot config flags enhancedsecure-mode jitc**
- **boot config flags enhancedsecure-mode non-jitc**
- **default boot config flags enhancedsecure-mode**
- **no boot config flags enhancedsecure-mode**

Command Parameters

{jitc | non-jitc}

Enables either the JITC or non-JITC enhanced secure mode.

Default

The default is disabled.

Command Mode

Global Configuration

Usage Guidelines

You must save the configuration and reboot the switch for a configuration change to take effect.



Note

When you migrate your switch from enhanced secure mode enabled to disabled, or from disabled to enabled, you must build a new configuration.

Do not use a configuration created in either enhanced secure mode disabled or enabled and expect it to transfer over to the new mode.

The configuration file cannot be guaranteed if you transfer between enhanced secure mode enabled to disabled, or from enhanced secure mode disabled to enabled.

boot config flags factorydefaults

Run this command to reset the switch to use factory default settings at startup.

Removes the configuration files, primary and secondary config file names, all user account passwords, digital certificates, IKE/OSPF/IS-IS keys, and SNMP communities. All ports are disabled and assigned to VLAN 1. License files are not removed.

For a complete factory default configuration, see boot config flags factorydefaults reset-all-files on page 386. The *Fabric Engine User Guide* also includes procedures to use the various factory default behaviors.

Syntax

- **boot config flags factorydefaults**
- **no boot config flags factorydefaults**

Default

The default is disabled.

Command Mode

Global Configuration

Usage Guidelines

This flag resets to the default setting after the CPU restarts. If you change this flag, you must restart the switch.

boot config flags factorydefaults config-only

Boots the switch with a blank configuration.

This parameter preserves configuration files, primary and secondary configuration file names, user accounts and passwords, digital certificates, IKE/OSPF/IS-IS keys, license files, and SNMP communities. All ports are disabled and assigned to VLAN 1.

Use this parameter as a temporary troubleshooting option to test or investigate if something is wrong with the configuration without permanently removing the configuration files, user accounts, and other preserved items.

Syntax

- **boot config flags factorydefaults config-only**
- **no boot config flags factorydefaults**

Default

The default is disabled.

Command Mode

Global Configuration

Usage Guidelines

This flag resets to the default value after the CPU restarts. If you change this flag, you must restart the switch.

boot config flags factorydefaults reset-all-files

Boots the switch with a factory default configuration.

Equivalent to a switch that ships from the factory. The switch has no configuration files, default user accounts, default security mode, Auto-sense-enabled ports, and performs a ZTP+ configuration after reboot. The 30-day factory license is also reset. If required, you must revoke the license file. The 30-day factory license does not apply to 4220 Series.



Note
You can also use the **unconfigure switch** command to achieve the same behavior.

Syntax

- **boot config flags factorydefaults reset-all-files**
- **no boot config flags factorydefaults**

Default

The default is disabled.

Command Mode

Global Configuration

Usage Guidelines

This flag resets to the default value after the CPU restarts. If you change this flag, you must restart the switch.

boot config flags factorydefaults zero-touch

Boots the switch with a default configuration that enables Auto-sense. This parameter resets secure files but keeps the security mode and performs a ZTP+ configuration after reboot. License files are not removed.

Syntax

- **boot config flags factorydefaults zero-touch**
- **no boot config flags factorydefaults**

Default

The default is disabled.

Command Mode

Global Configuration

Usage Guidelines

This flag resets to the default value after the CPU restarts. If you change this flag, you must restart the switch.

boot config flags factorydefaults zero-touch-config-only

Boots the switch with a blank configuration that enables Auto-sense and performs a ZTP+ configuration.

This parameter preserves configuration files, primary and secondary configuration file names, user accounts and passwords, digital certificates, IKE/OSPF/IS-IS keys, license files, and SNMP communities.

Note
Feature support can vary across platforms. For more information, see *Fabric Engine and VOSS Feature Matrix*.

Use this parameter as a temporary troubleshooting option to test or investigate if something is wrong with the configuration without permanently removing the configuration files, user accounts, and other preserved items.

Syntax

- **boot config flags factorydefaults zero-touch-config-only**
- **no boot config flags factorydefaults**

Default

The default is disabled.

Command Mode

Global Configuration

Usage Guidelines

This flag resets to the default value after the CPU restarts. If you change this flag, you must restart the switch.

boot config flags flow-control-mode

Activate or disable flow control globally. When disabled, the system does not generate nor configure the transmission of flow control messages.

Syntax

- **boot config flags flow-control-mode**
- **default boot config flags flow-control-mode**
- **no boot config flags flow-control-mode**

Default

The default is disabled.

Command Mode

Global Configuration

boot config flags ftpd

Activate or disable the FTP server on the switch. To enable FTP, ensure that the tftpd flags is disabled.

Syntax

- **boot config flags ftpd**
- **default boot config flags ftpd**

- **no boot config flags ftpd**

Default

The default is disabled.

Command Mode

Global Configuration

boot config flags hsecure

Activate or disable High Secure mode. The hsecure command provides the following password behavior: 10 character enforcement, aging time, failed login attempt limitation, and designated IP address filtration.

Syntax

- **boot config flags hsecure**
- **default boot config flags hsecure**
- **no boot config flags hsecure**

Default

The default is disabled.

Command Mode

Global Configuration

Usage Guidelines

If you enable High Secure mode, you must restart the switch to enforce secure passwords. If you operate the switch in High Secure mode, the switch prompts a password change if you enter invalid-length passwords.

boot config flags ipv6-egress-filter

Enables IPv6 egress filters.

Syntax

- **boot config flags ipv6-egress-filter**
- **default boot config flags ipv6-egress-filter**
- **no boot config flags ipv6-egress-filter**

Default

The default is disabled.

Command Mode

Global Configuration

Usage Guidelines

You must save the configuration and reboot the switch for a configuration change to take effect.

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

boot config flags ipv6-mode

Activate or disable IPv6 mode.

Syntax

- **boot config flags ipv6-mode**
- **default boot config flags ipv6-mode**
- **no boot config flags ipv6-mode**

Default

The default is disabled.

Command Mode

Global Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine User Guide*.

boot config flags logging

The system names log files according to the following:

- File names appear in 8.3 (xxxxxxxx.sss) format.
- The first 6 characters of the file name contain the last three bytes of the chassis base MAC address.

- The next two characters in the file name specify the slot number of the CPU that generated the logs.
- The last three characters in the file name are the sequence number of the log file.

The system generates multiple sequence numbers for the same chassis and same slot if the system reaches the maximum log file size.

Syntax

- **boot config flags logging**
- **default boot config flags logging**
- **no boot config flags logging**

Default

The default is enabled.

Command Mode

Global Configuration

boot config flags macsec

Configure the boot flag to enable Media Access Control Security (MACsec) on all the ports.

Syntax

- **default boot config flags macsec**
- **boot config flags macsec**
- **no boot config flags macsec**

Default

None

Command Mode

Global Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine User Guide*.

boot config flags nni-mstp

Activate or disable MSTP for non SPBM B-VLAN configuration on SPBM network-to-network interface (NNI) ports.

Syntax

- **boot config flags nni-mstp**
- **default boot config flags nni-mstp**
- **no boot config flags nni-mstp**

Default

The default is disabled.

Command Mode

Global Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

boot config flags reboot

Activate or disable automatic reboot on a fatal error. The reboot command is equivalent to the debugmode command.



Important

Do not change this parameter unless directed to do so by Technical Support.

Syntax

- **boot config flags reboot**
- **default boot config flags reboot**
- **no boot config flags reboot**

Default

The default is enabled.

Command Mode

Global Configuration

Usage Guidelines

You must save the configuration and reboot the switch for a configuration change to take effect.

boot config flags spanning-tree-mode

Specify the Multiple Spanning Tree Protocol (MSTP) or Rapid Spanning Tree Protocol (RSTP) mode. If you do not specify a protocol, the switch uses the default mode.

Syntax

- **boot config flags spanning-tree-mode mstp**
- **boot config flags spanning-tree-mode rstp**
- **default boot config flags spanning-tree-mode**
- **no boot config flags spanning-tree-mode**

Default

The default is MSTP.

Command Mode

Global Configuration

Usage Guidelines

You must save the configuration and reboot the switch for a configuration change to take effect.

7830 Series does not support the *rstp* parameter.

boot config flags spbm-config-mode

Enable SPBM configuration mode.

Syntax

- **boot config flags spbm-config-mode**
- **default boot config flags spbm-config-mode**
- **no boot config flags spbm-config-mode**

Default

The default is enabled.

Command Mode

Global Configuration

Usage Guidelines

You cannot disable this boot configuration flag on 7830 Series (**no boot config flags spbm-config-mode**).

boot config flags spbm-node-scaling

Increases the number of supported SPB Nodes per area on the switch.

Syntax

- **boot config flags spbm-node-scaling**
- **default boot config flags spbm-node-scaling**
- **no boot config flags spbm-node-scaling**

Default

The default is disabled.

Command Mode

Global Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine User Guide*.

If you enable this boot config flag, it decreases the scaling limits for the following features:

- Switched UNI (S-UNI) endpoints
- Layer 2 and Layer 3 I-SIDs
- IP Multicast over Fabric Connect local streams

The scaling numbers for the following items are limited by the use of a shared hardware resource, and thus they affect one another:

- the number of SPB nodes per area
- the number of SPB nodes that send IP Multicast streams that the local BEB receives
- local SPB services:
  - Layer 2 I-SIDs
  - Layer 3 I-SIDs

- IP Multicast over Fabric Connect remote IP Multicast stream data I-SIDs
- I-SID mirroring instances

For more information about maximum scaling numbers, see *Fabric Engine Release Notes*.

boot config flags sshd

Activate or disable the Secure Shell (SSH) server service.

Syntax

- **boot config flags sshd**
- **default boot config flags sshd**
- **no boot config flags sshd**

Default

The default is disabled.

Command Mode

Global Configuration

boot config flags syslog-rfc5424-format

Enables syslog and logging to use the RFC 5424 formatting. With this formatting, the syslog header has a timestamp conforming to RFC 3339, which helps identify the syslog generation time by indicating the year, milliseconds, and timezone, as well as the hostname from which the message is generated.

Syntax

- **boot config flags syslog-rfc5424-format**
- **default boot config flags syslog-rfc5424-format**
- **no boot config flags syslog-rfc5424-format**

Default

The default is disabled.

Command Mode

Global Configuration

boot config flags telnetd

Activate or disable the Telnet server service.

Syntax

- **boot config flags telnetd**
- **default boot config flags telnetd**
- **no boot config flags telnetd**

Default

The default is disabled.

Command Mode

Global Configuration

boot config flags tftpd

Activate or disable Trivial File Transfer Protocol (TFTP) server service.

Syntax

- **boot config flags tftpd**
- **default boot config flags tftpd**
- **no boot config flags tftpd**

Default

The default is disabled.

Command Mode

Global Configuration

boot config flags trace-logging

Activate or disable the creation of trace logs.



Important
Do not change this parameter unless directed to do so by Technical Support.

Syntax

- **boot config flags trace-logging**

- **default boot config flags trace-logging**
- **no boot config flags trace-logging**

Default

The default is disabled.

Command Mode

Global Configuration

boot config flags urpf-mode

Enable the urpf-mode boot flag.

Syntax

- **boot config flags urpf-mode**
- **default boot config flags urpf-mode**
- **no boot config flags urpf-mode**

Default

The default is disabled.

Command Mode

Global Configuration

Usage Guidelines

You must save the configuration and reboot the switch for a configuration change to take effect.

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

boot config flags verify-config

Activates syntax checking of the configuration file.

When you enable the verify-config flags, the primary configuration file is pre-checked for syntax errors. If the system finds an error, the system loads the backup configuration file.

If you disable the verify-config flags, the system ignores any lines with errors during loading of the primary configuration file.

If the primary configuration file is not present or cannot be found, the system tries to load the backup file. The system does not check the backup file for syntax errors. The system ignores any lines with errors during the loading of the backup configuration file.

If no backup file exists, the system defaults to factory defaults.

Syntax

- **boot config flags verify-config**
- **default boot config flags verify-config**
- **no boot config flags verify-config**

Default

The default is enabled.

Command Mode

Global Configuration

boot config flags vrf-scaling

Increases the maximum number of VRFs and Layer 3 VSNs that the switch supports.

Syntax

- **boot config flags vrf-scaling**
- **default boot config flags vrf-scaling**
- **no boot config flags vrf-scaling**

Default

The default is disbaled.

Command Mode

Global Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine User Guide*.

Platforms that do not support this boot configuration flag automatically support their maximum number of VRFs without additional VLAN reservation.

The maximum number of supported VRFs and Layer 3 VSNs differs depending on the hardware platform. For more information about maximum scaling numbers, see *Fabric Engine Release Notes*.

boot config flags vxlan-gw-full-interworking-mode

Activate or disable VXLAN Gateway in Full Interworking Mode, which supports SPB, SMLT, and vIST.

Syntax

- **boot config flags vxlan-gw-full-interworking-mode**
- **default boot config flags vxlan-gw-full-interworking-mode**
- **no boot config flags vxlan-gw-full-interworking-mode**

Default

None

Command Mode

Global Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

boot config host

Configure the remote host logon to modify parameters for FTP and TFTP access. Use the default parameters for TFTP transfers. If you want to use FTP as transfer mechanism, you must change the password to a valid value.

Syntax

- **boot config host ftp-debug**
- **boot config host password WORD<0-16>**
- **boot config host tftp-debug**
- **boot config host tftp-hash**
- **boot config host tftp-rexmit <1-120>**
- **boot config host tftp-timeout <1-120>**
- **boot config host user WORD<0-16>**
- **default boot config host ftp-debug**

- **default boot config host tftp-debug**
- **default boot config host tftp-hash**
- **default boot config host tftp-rexmit**
- **default boot config host tftp-timeout**
- **default boot config host user**
- **no boot config host ftp-debug**
- **no boot config host tftp-debug**
- **no boot config host tftp-hash**

Command Parameters

ftp-debug

Enables or disables the debug mode on FTP. If you enable the debug mode, debug messages appear on the management console screen. The default is disabled.

password WORD<0-16>

Configures the password to enable FTP transfers. WORD<0-16> is the password, up to 16 characters. After you configure this password, you can use only FTP for remote host logon.



Important

This password must match the password for the FTP server or the FTP operation fails. Also, if you configure the password to a valid value, then all copying to and from the network uses FTP instead of TFTP.

If the user name or password is incorrect, copying over the network fails.

tftp-debug

Enables or disables debug mode on TFTP or TFTPD. If you enable the debug mode, debug messages appear on the management console screen. The default is disabled.



Important

tftp-debug should be used exclusively to transfer small files less than 1MB in size. Using it for larger files might cause unwanted behavior, such as transfer failure.

tftp-hash

Enables or disables the TFTP hash bucket display. The default is disabled.

tftp-rexmit <1-120>

Configures the TFTP retransmission timeout in seconds. The default is 2.

tftp-timeout <1-120>

Configures the TFTP timeout in seconds. The default is 6.

user WORD<0-16>

Configures the remote user logon. WORD<0-16> is the user logon name (up to 16 characters). The default is target.

Default

None

Command Mode

Global Configuration

boot config loadconfigtime

Set the timeout for loading the configuration file.

Syntax

- **boot config loadconfigtime <0-300>**
- **default boot config loadconfigtime**

Command Parameters

<0-300>

Specifies the timeout for loading the configuration file in seconds.

Default

The default is 60 seconds.

Command Mode

Global Configuration

boot config logfile

Configure log file parameters.

- The log file is named using an 8.3 (xxxxxxxx.sss) format.
- The first six characters of the file name contain the last three bytes of the chassis base MAC address.
- The next two characters specify the slot number of the CP that generated the logs.
- The last three characters denote the sequence number of the log file.

Multiple sequence numbers are generated for the same chassis and same slot, if the maximum log file size is reached.

Syntax

- **boot config logfile <64-500> <500-16384> <10-90>**
- **default boot config logfile**

Command Parameters

<10-90>

Specifies the maximum percentage, from 10-90%, of space on `/intflash` the log file can use. Although you can currently use this parameter, it does not alter the configuration.

<500-16384>

Specifies the maximum size of the log file from 500-16384 KB.

<64-500>

Specifies the minimum free memory space on `/intflash` from 64-500 KB. Although you can currently use this parameter, it does not alter the configuration.

Default

None

Command Mode

Global Configuration

Usage Guidelines

The maximum number of log files is 1,000. The maximum size of one log file is 1,024 KB.

You cannot configure the log file parameters on 5320 Series or 5420 Series. On these platforms, the number of log files is restricted to 145 and the size of a log file is restricted to 126 KB.

boot config multicast

Configure multicast parameters.

Syntax

- **boot config multicast**
- **default boot config multicast**

Default

None

Command Mode

Global Configuration

boot config sio console baud

Configure the serial port devices to define connection settings for the console port.

Syntax

- **boot config sio console baud <115200>**
- **default boot config sio console baud**

Command Parameters

<115200>

Configures the baud rate for the port.

Default

The default is 115200 and cannot be modified.

Command Mode

Global Configuration

certificate ca

Configures the certificate authority (CA) and perform related actions. You can configure only one CA in a device at a time.

Syntax

- **certificate ca WORD<1-45> [action caauth | action enroll validity-days <7-1185> | action get-crl | action install | action noop | action remove | action renew validity-days <7-1185> | ca-url WORD<0-1000> | common-name WORD<0-64> | install-file root-ca-filename WORD<1-80> | key-name<0-64> | sha256-fingerpint WORD<64-64> | use-post <true|false>]**
- **default certificate ca**
- **no certificate ca WORD<1-45> [action | ca-url | common-name | key-name | sha256-fingerpint | use-post]**

Command Parameters

action caauth

Authenticates the trustpoint CA by getting the certificate of the CA and stores the CA certificate locally.

action enroll [validity-days <7–1185>]

Generates certificate signing request to obtain identity certificate from configured trustpoint CA, gets the digital certificate, and stores it locally, associating with the trustpoint CA. The validity-days specifies the number of days for which the certificate remains valid. The default value is 365 days.

action get-crl

Gets the Certificate Revocation List from the CDP and stores into a file.

action install

Installs the subject certificate obtained from the given trustpoint CA.

action noop

Specifies that no operation should be performed after configuring trustpoint.

action remove

Releases the locally stored certificate associated with the trustpoint CA post revocation.

action renew [challengepassword WORD<0-128>]

This password is provided offline by the CA during the end entity registration. The length of the password is from 0 to 128.

action renew [validity-days <7–1185>]

Generates certificate renewal request for given trustpoint CA, gets the digital certificate, and stores it locally by replacing the old certificate with the new one. The validity-days specifies the number of days for which the certificate remains valid. The default value is 365 days.

ca-url WORD<0–1000>

Specifies the trusted CA url.

common-name WORD<0–64>

Specifies the name of the owner of the device or user.

install-file [rootca-filename WORD<1–80>]

Installs the Root CA file obtained offline from the CA.

key-name WORD<0–45>

Specifies the key pair generated by the command that was first associated with the CA trustpoint.

sha256-fingerprint WORD<64–64>

Specifies an encrypted fingerprint of the expected certificate to match.

use-post <true|false>

Specify the HTTP request style. The default value is True.

WORD<1–45>

Specifies the name of the certificate authority. It should be alphanumeric and case-sensitive with maximum length is 45 characters.

Default

None

Command Mode

Global Configuration

certificate generate-csr

Generate a certificate signing request (CSR) and store it in a file.

Syntax

- **certificate generate-csr**
- **certificate generate-csr relaxed**

Command Parameters

relaxed

Uses relaxed-mode CSR generation for less restrictive consistency checks and subject alternative name inclusion in the CSR.

Default

None

Command Mode

Global Configuration

Usage Guidelines

To use relaxed mode, you must configure at least one certificate subject common name on the switch.

certificate generate-keypair

Generate the private and public key pair for the specific cryptography type.

Syntax

- **certificate generate-keypair key-name WORD<1-45>**
- **certificate generate-keypair type rsa size <2048>**
- **default certificate generate-keypair**
- **no certificate generate-keypair [key-name WORD<1-45>]**

Command Parameters

key-name WORD<1-45>

Specifies the key label of the generated keypair.

size <2048>

Specifies the size or modulus of key-pair to be generated. The value should be 2048.

type rsa

Specifies type of cryptography algorithm used to generate the key-pair.

Default

None

Command Mode

Global Configuration

certificate install-file

Install certification authority (CA), root CA, or subject certificates, or a Certificate Revocation List (CRL) file obtained offline from the CA.

Syntax

- **certificate install-file offline-ca-filename WORD<1-80>**
- **certificate install-file offline-crl-filename WORD<1-80>**
- **certificate install-file offline-root-ca-filename WORD<1-80>**
- **certificate install-file offline-subject-filename WORD<1-80>**
- **certificate install-file offline-subject-filename WORD<1-80> relaxed**
- **certificate install-file offline-subject-filename WORD<1-80> relaxed pkcs12-password WORD<1-128>**
- **no certificate install-file offline-ca-filename WORD<1-80>**
- **no certificate install-file offline-crl-filename WORD<1-80>**
- **no certificate install-file offline-root-ca-filename WORD<1-80>**
- **no certificate install-file offline-subject-filename WORD<1-80>**

Command Parameters

offline-ca-filename WORD<1-80>

Specifies the CA file name obtained from the CA.

offline-crl-filename WORD<1-80>

Specifies the CRL file obtained from the CA.

offline-root-ca-filename WORD<1-80>

Specifies the root CA file name obtained from the CA.

offline-subject-filename WORD<1-80>

Specifies the subject certificate file name obtained from the CA.

relaxed pkcs12-password WORD<1-128>

Uses the relaxed mode for offline subject certificate installation for less restrictive consistency checks.

You can also install a PKCS12 format certificate and secret key in relaxed mode. *WORD<1-128>* is the password to extract the PKCS12 container. If you do not include this parameter, the supported format is Distinguished Encoding Rules (DER).

Default

None

Command Mode

Global Configuration

certificate subject

Configure the device subject parameters to identify the device, such as the name, Email ID, company, department, location, and subject name.

Syntax

- **certificate subject common-name WORD<0-64>**
- **certificate subject country WORD<0-128>**
- **certificate subject e-mail WORD<0-254>**
- **certificate subject locality WORD<0-128>**
- **certificate subject organization WORD<0-64>**
- **certificate subject province WORD<0-128>**
- **certificate subject-name WORD <1-45>**
- **certificate subject unit WORD<0-64>**
- **default certificate subject**
- **no certificate subject**
- **no certificate subject common-name**
- **no certificate subject country**
- **no certificate subject e-mail**
- **no certificate subject locality**

- **no certificate subject organization**
- **no certificate subject province**
- **no certificate subject unit**
- **no certificate subject-name**

Command Parameters

common-name WORD<0–64>

Specifies the name of the subject sending the Certificate Signing Request to the Certificate Authority.

country WORD<2–2>

Specifies the country of the subject sending the Certificate Signing Request to the Certificate Authority.

e-mail WORD<0-254>

Specifies the Email address of the subject sending the Certificate Signing Request to the Certificate Authority.

locality WORD<0-128>

Specifies the locality of the subject sending the Certificate Signing Request to the Certificate Authority.

organization WORD<0-64>

Specifies the organization of the subject sending the Certificate Signing Request to the Certificate Authority.

province WORD<0-128>

Specifies the province of the subject sending the Certificate Signing Request to the Certificate Authority.

subject-name WORD<0-45>

Specifies the subject Distinguished Name (DN) of the subject to be used in local digital certificate request. You can configure up to 10 subject DN identities. If a subject name is not specified, the switch generates one.

unit WORD<0-64>

Specifies the organizational unit of the subject sending the Certificate Signing Request to the Certificate Authority.

Default

None

Command Mode

Global Configuration

certificate subject-alternative-name

Use a subject alternative name to associate values, such as an email address, an IP address, a fully qualified domain name (FQDN), or a subject name with a security certificate.

Syntax

- **certificate subject-alternative-name dns WORD<1-255>**
- **certificate subject-alternative-name e-mail WORD<1-255>**
- **certificate subject-alternative-name ip WORD<1-255>**
- **certificate subject-alternative-name subject-name WORD<1-45>**
- **default certificate subject-alternative-name**
- **no certificate subject-alternative-name**
- **no certificate subject-alternative-name dns WORD<1-255>**
- **no certificate subject-alternative-name e-mail WORD<1-255>**
- **no certificate subject-alternative-name ip WORD<1-255>**
- **no certificate subject-alternative-name subject-name WORD<1-45>**

Command Parameters

dns WORD<1-255>

Specifies the FQDN to add as a subject alternative name.

e-mail WORD<1-255>

Specifies the e-mail address to add as a subject alternative name.

ip WORD<1-255>

Specifies the IP address to add as a subject alternative name.

subject-name WORD<1-45>

Specifies the subject alternative name of the subject used in local digital certificate request.

Default

By default, subject alternative names are not configured.

Command Mode

Global Configuration

cfm maintenance-association

Create the Connectivity Fault Management (CFM) Maintenance-Association (MA).

Syntax

- **cfm maintenance-association WORD<1-22> WORD<1-22>**
- **cfm maintenance-association WORD<1-22> WORD<1-22> index <1-2147483647>**
- **no cfm maintenance-association WORD<1-22> WORD<1-22>**

Command Parameters

index <1-2147483647>

Specifies a Maintenance-Association (MA) entry index.

WORD<1-22>

Creates the Connectivity Fault Management (CFM) Maintenance-Association (MA).

Default

The default is disabled.

Command Mode

Global Configuration

cfm maintenance-domain

Create the Connectivity Fault Management (CFM) Maintenance-Domain (MD).

Syntax

- **cfm maintenance-domain WORD<1-22>**
- **cfm maintenance-domain WORD<1-22> index <1-2147483647>**
- **cfm maintenance-domain WORD<1-22> index <1-2147483647> maintenance-level <0-7>**
- **cfm maintenance-domain WORD<1-22> level <0-7>**
- **cfm maintenance-domain WORD<1-22> maintenance-level <0-7>**
- **cfm maintenance-domain WORD<1-22> maintenance-level <0-7> index <1-2147483647>**
- **no cfm maintenance-domain WORD<1-22>**

Command Parameters

index <1-2147483647>

Specifies a Maintenance-Domain (MD) entry index.

level <0-7>

Specifies the Maintenance-Domain (MD) level for an existing Maintenance-Domain (MD).

maintenance-level <0-7>

Specifies the Maintenance-Domain (MD) maintenance level when creating the Maintenance-Domain (MD).

WORD<0-22>

Specifies the Maintenance-Domain (MD) name.

WORD<0-22>

Specifies the Maintenance-Association (MA) name.

Default

None

Command Mode

Global Configuration

cfm maintenance-endpoint

Create the Connectivity Fault Management (CFM) Maintenance-Endpoint (MEP).

Syntax

- **cfm maintenance-endpoint WORD<1-22> WORD<1-22> <1-8191>**
- **cfm maintenance-endpoint WORD<1-22> WORD<1-22> <1-8191> enable**
- **cfm maintenance-endpoint WORD<1-22> WORD<1-22> <1-8191> state enable**
- **no cfm maintenance-endpoint WORD<1-22> WORD<1-22> <1-8191>**
- **no cfm maintenance-endpoint WORD<1-22> WORD<1-22> <1-8191> enable**

Command Parameters

<1-8191>

Specifies the Maintenance Endpoint (MEP) ID.

enable

Enables an existing Maintenance Endpoint (MEP). Use this parameter with the no option to disable an existing MEP.

state enable

Enables the Maintenance Endpoint (MEP) when creating the MEP. Use the no option to disable the Maintenance Endpoint.

WORD<1-22>

Specifies the Maintenance-Domain (MD) name.

WORD<1-22>

Specifies the Maintenance-Association (MA) name.

Default

None

Command Mode

Global Configuration

cfm spbm enable

Enables CFM for B-VLANs, which creates the MD, MA, and MEP, and then associate the MEP and MIP level to B-VLANs.

Syntax

- **cfm spbm enable**
- **no cfm spbm enable**

Default

The default is disabled.

Command Mode

Global Configuration

cfm spbm level

Configures the maintenance level for every CFM SPBM MEP and MIP level on all SPBM VLANs.

Syntax

- **cfm spbm level <0-7>**
- **default cfm spbm level**

Command Parameters

<0-7>

Specifies the maintenance level for every CFM SPBM MEP and MIP level on all SPBM VLANs. The default is 4.

Default

The default is 4.

Command Mode

Global Configuration

cfm spbm mepid

Assigns a global MEP ID for all CFM SPBM MEPs.

Syntax

- **cfm spbm mepid <1-8191>**
- **default cfm spbm mepid**

Command Parameters

<1-8191>

Specifies the global MEP ID for all CFM SPBM MEPs. The default is 1.

Default

The default is 1.

Command Mode

Global Configuration

cli password

Configure new passwords for each access level, or change the logon or password for the different access levels of the switch. After you receive the switch, use default passwords to initially access CLI. If you use Simple Network Management Protocol version 3 (SNMPv3), you can change encrypted passwords.

Syntax

- **cli password WORD<1-20> layer1**
- **cli password WORD<1-20> layer2**
- **cli password WORD<1-20> layer3**
- **cli password WORD<1-20> read-only**
- **cli password WORD<1-20> read-write**
- **cli password WORD<1-20> read-write-all**

Command Parameters

<layer1|layer2|layer3|read-only|read-write|read-write-all>

Changes the password for the specific access level.

- The read-only default logon is ro and the default password is ro.
- The Layer 1 read/write logon is l1 and the default password is l1.
- The Layer 2 read/write logon is l2 and the default password is l2.
- The Layer 3 read/write logon is l3 and the default password is l3.
- The read/write logon is rw and the default password is rw.
- The read/write/all logon is rwa and the default password is rwa.

WORD<1-20>

Specifies the user login name.

Default

None

Command Mode

Global Configuration

cli timeout

Configure the idle timeout period before automatic logoff for CLI and Telnet sessions.

Syntax

- **cli timeout <30-65535>**
- **default cli timeout**

Command Parameters

<30-65535>

Configures the timeout value, in seconds, to wait for a Telnet or CLI login session before terminating the connection.

Default

The default is 900 seconds.

Command Mode

Global Configuration

clilog enable

Use CLI logging to track all CLI commands executed and for fault management purposes. CLI commands are logged to the system log file as CLILOG module.

Syntax

- **clilog enable**
- **default clilog [enable]**
- **no clilog enable**

Default

The default is disabled.

Command Mode

Global Configuration

clock time-zone

Configure the time zone to use an internal system clock to maintain accurate time. The time zone data in Linux includes daylight changes for all time zones up to the year 2100. You do not need to configure daylight saving time.

Syntax

- **clock time-zone**
- **clock time-zone WORD<1-10> [WORD<1-20>][WORD<1-20>]**
- **default clock time-zone**
- **no clock time-zone**

Command Parameters

WORD<1-10>

Specifies a directory name or a time zone name in /usr/share/zoneinfo, for example, Africa, Australia, Antarctica, or US. To see a list of options, enter clock time-zone at the command prompt without variables.

WORD<1-20> WORD<1-20>

The first instance of WORD<1-20> is the area within the timezone. The value represents a time zone data file in /usr/share/zoneinfo/WORD<1-10>/ , for example, Shanghai in Asia.

The second instance of WORD<1-20>is the subarea. The value represents a time zone data file in /usr/share/zoneinfo/WORD<1-10>/WORD<1-20>/, for example, Vevay in America/Indiana.

To see a list of options, enter clock time-zone at the command prompt without variables.

Default

The default is Coordinated Universal Time (UTC).

Command Mode

Global Configuration

debug ip pim

Configures debug commands for pim messages globally.

Syntax

- **debug ip pim assert**
- **debug ip pim bstrap**
- **debug ip pim group {A.B.C.D}**
- **debug ip pim hello**
- **debug ip pim join-prune**
- **debug ip pim pimdbglog**
- **debug ip pim pimdbgtrace**
- **debug ip pim rcv-dbg-trace**
- **debug ip pim register**
- **debug ip pim regstop**
- **debug ip pim rp-adv**
- **debug ip pim send-dbg-trace**
- **debug ip pim source {A.B.C.D}**

Command Parameters

assert

Set assert debug trace to true.

bstrap

Set bstrap trace to true.

group {A.B.C.D}

Set group value to specific multicast group value.

hello

Set hello debug trace to true.

join-prune

Set joinprune debug trace to true.

pimdbglog

Set pim debug log to true.

pimdbgtrace

Set pim debug trace to true.

rcv-dbg-trace

Set rcv debug trace to true.

register

Set register debug trace to true.

regstop

Set register stop debug trace to true.

rp-adv

Set rp-adv debug trace to true.

send-dbg-trace

Set send trace to true.

source {A.B.C.D}

Set source value to specific source ip-addr.

Default

None

Command Mode

Global Configuration

dvr controller

Configures a switch as the DvR Controller of a DvR domain, whose domain ID you specify. Configuring a switch as the Controller enables DvR globally on the node.

Syntax

- **default dvr controller inject-default-route-disable**
- **dvr controller <1-255>**
- **dvr controller inject-default-route-disable**
- **no dvr controller**
- **no dvr controller inject-default-route-disable**

Command Parameters

<1-255>

Configures a switch as the DvR Controller of a DvR domain, whose domain ID you specify. Configuring a switch as the Controller enables DvR globally on the node.

Default

None

Command Mode

Global Configuration

dvr controller <1-255> inject-default-route-disable

Disables injection of default routes for the GRT on the DvR Controller.

Syntax

- **default dvr controller <1-255> inject-default-route-disable**
- **dvr controller <1-255> inject-default-route-disable**

Default

The default is enable

Command Mode

Global Configuration

dvr controller vrrp-on-dvr-isids enable

Enables sending Virtual Router Redundancy Protocol (VRRP) advertisements on Distributed Virtual Routing (DvR) Service Instance Identifiers (I-SIDs).

Syntax

- **default dvr controller vrrp-on-dvr-isids enable**
- **dvr controller vrrp-on-dvr-isids enable**
- **no dvr controller vrrp-on-dvr-isids enable**

Default

The default is disabled.

Command Mode

Global Configuration

Usage Guidelines

This command only applies to DvR Controllers. For information on DvR Controller support, see *Fabric Engine and VOSS Feature Matrix*.

You cannot enable this command without first enabling VRRP election on a DvR VLAN.

dvr controller vrrp-on-dvr-isids priority <1-254>

Configures the Virtual Router Redundancy Protocol (VRRP) priority for the elected Distributed Virtual Routing (DvR) VLAN. Switches advertise their priority to use in the primary router election process.

Syntax

- **default dvr controller vrrp-on-dvr-isids priority**
- **dvr controller vrrp-on-dvr-isids priority <1-254>**

Default

The default value is 100.

Command Mode

Global Configuration

Usage Guidelines

This command only applies to DvR Controllers. For information on DvR Controller support, see *Fabric Engine and VOSS Feature Matrix*.

dvr isolated controller <1-255>

Configures a switch as an isolated Controller on a DvR isolated domain.

Syntax

- **dvr isolated controller <1-255>**
- **no dvr controller**

Command Parameters

<1-255>

Specifies the domain ID to which the Controller belongs.

Default

None

Command Mode

Global Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

dvr isolated controller <1-255> inject-default-route-disable

Disables injection of default routes for the GRT on the isolated Distributed Virtual Routing (DvR) Controller.

Syntax

- **dvr isolated controller <1-255> inject-default-route-disable**

Default

The default is enable.

Command Mode

Global Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

dvr leaf

Configures a switch as the DvR Leaf in a DvR domain, whose domain ID you specify. Configuring a switch as the DvR Leaf enables DvR globally on the node.

Syntax

- **dvr leaf <1-255>**
- **no dvr leaf**

Command Parameters

<1-255>

Configures a switch as the DvR Leaf in a DvR domain, whose domain ID you specify. Configuring a switch as the DvR Leaf enables DvR globally on the node.

Default

none

Command Mode

Global Configuration

dvr leaf <1-255> virtual-ist {A.B.C.D/X} {A.B.C.D} peer-ip {A.B.C.D} cluster-id <1-1000>

Configures vIST on a DvR Leaf node pair. When you configure vIST on a DvR Leaf node pair, the switch generates an I-SID from the configured cluster ID. This I-SID is unique across the SPB network as long as the cluster ID is unique across the SPB network, for the vIST pair.

You can configure only one instance of vIST on the Leaf node pair. To configure vIST, both nodes must be Leaf nodes. You cannot configure vIST, for example, on a Controller-Leaf node pair. Also both the nodes must belong to the same DvR domain.

vIST configuration over Leaf nodes in different domains is not supported.

Syntax

- **dvr leaf <1-255> virtual-ist {A.B.C.D/X} {A.B.C.D} peer-ip {A.B.C.D} cluster-id <1-1000>**

Command Parameters

none

Configures vIST on a DvR Leaf node pair

Default

None.

Command Mode

Global Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

dvr leaf <1-255> virtual-ist {A.B.C.D} {A.B.C.D} peer-ip {A.B.C.D} cluster-id <1-1000>

Configures vIST on a DvR Leaf node pair. When you configure vIST on a DvR Leaf node pair, the switch generates an I-SID from the configured cluster ID. This I-SID is unique across the SPB network as long as the cluster ID is unique across the SPB network, for the vIST pair.

You can configure only one instance of vIST on the Leaf node pair. To configure vIST, both nodes must be Leaf nodes. You cannot configure vIST, for example, on a Controller-Leaf node pair. Also both the nodes must belong to the same DvR domain.

vIST configuration over Leaf nodes in different domains is not supported.

Syntax

- **dvr leaf <1-255> virtual-ist {A.B.C.D} {A.B.C.D} peer-ip {A.B.C.D} cluster-id <1-1000>**

Command Parameters

none

Configures vIST on a DvR Leaf node pair

Default

none

Command Mode

Global Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

dvr redistribute direct

Enables route redistribution of direct routes on the GRT. The route type is internal.

Syntax

- **dvr redistribute direct enable**
- **dvr redistribute direct metric <0-65535>**
- **dvr redistribute direct route-map**

Command Parameters

enable

Enables route redistribution of direct routes on the GRT. The route type is internal.

metric <0-65535>

Configures the route redistribution metric for direct routes on the GRT.

route-map

Configures the route policy for route redistribution of direct routes, on the GRT.

Default

The default is disable

Command Mode

Global Configuration

dvr redistribute static

Enables route redistribution of static routes on the GRT. The route type is internal.

Syntax

- **dvr redistribute static enable**
- **dvr redistribute static metric <0-65535>**
- **dvr redistribute static route-map**

Command Parameters

enable

Enables route redistribution of static routes on the GRT. The route type is external.

metric <0-65535>

Configures the route redistribution metric for static routes on the GRT.

route-map

Configures the route policy for route redistribution of static routes, on the GRT.

Default

The default is disable

Command Mode

Global Configuration

eapol auto-isid-offset

Configure an I-SID offset value, and globally enable I-SID offset for the Extensible Authentication Protocol (EAPoL) feature. The I-SID offset value is used to calculate an I-SID value for a Switched UNI if no I-SID value is provided by the RADIUS server. In that case, the I-SID value is calculated as follows: I-SID = VLAN ID + configured I-SID offset value.

Syntax

- **default eapol auto-isid-offset**
- **eapol auto-isid-offset <0-15995903>**
- **eapol auto-isid-offset enable**
- **no eapol auto-isid-offset enable**

Command Parameters

<0-15995903>

Specifies the I-SID offset value used to calculate an I-SID value if no I-SID value is provided by the RADIUS server.

enable

Enables I-SID offset globally on the switch.

Default

The default status is disabled, and the default I-SID offset value is 15990000.

Command Mode

Global Configuration

Usage Guidelines

Configure the I-SID offset value first, and then enable I-SID offset globally on the switch.

eapol enable

Configure Extensible Authentication Protocol (EAPoL) on the switch.

Syntax

- **default eapol enable**
- **eapol enable**
- **no eapol enable**

Default

None

Command Mode

Global Configuration

eapol multihost non-eap-pwd-fmt

Configure the RADIUS password format for non-eap authentication for a radius server.

Syntax

- **default eapol multihost non-eap-pwd-fmt**
- **eapol multihost non-eap-pwd-fmt**
- **eapol multihost non-eap-pwd-fmt ip-addr**
- **eapol multihost non-eap-pwd-fmt keystring**
- **eapol multihost non-eap-pwd-fmt mac-addr**
- **eapol multihost non-eap-pwd-fmt padding**
- **eapol multihost non-eap-pwd-fmt port-number**

Command Parameters

ip-addr

Management ip-address of the switch.

key WORD<1-32>

Key string used in password format.

mac-addr

MAC address of the client.

padding

A dot(.) is used as delimiter.

port-number

IfIndex of the port on which MAC is received.

Default

None

Command Mode

Global Configuration

end

Use this command to return to the Privileged EXEC mode from Global Configuration mode or higher.

Syntax

- **end**

Default

None

Command Mode

Global Configuration

endpoint-tracking auto-isid-offset

Configure an I-SID offset value, and globally enable I-SID offset for the Endpoint Tracking feature. The I-SID offset value is used to calculate an I-SID value for a Switched UNI if no I-SID value is provided by the RADIUS server. In that case, the I-SID value is calculated as follows: I-SID = VLAN ID + configured I-SID offset value.

Syntax

- **default endpoint-tracking auto-isid-offset**
- **endpoint-tracking auto-isid-offset <0-15995903>**
- **endpoint-tracking auto-isid-offset enable**
- **no endpoint-tracking auto-isid-offset enable**

Command Parameters

<0-15995903>

Specifies the I-SID offset value used to calculate an I-SID value if no I-SID value is provided by the RADIUS server.

enable

Enables I-SID offset globally on the switch.

Default

The default status is disabled, and the default I-SID offset value is 15990000.

Command Mode

Global Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

Configure the I-SID offset value first, and then enable I-SID offset globally on the switch.

If you have previously enabled Endpoint Tracking globally and want to change the currently configured I-SID offset value, you must disable Endpoint Tracking globally, change the I-SID value, and then re-enable Endpoint Tracking globally.

endpoint-tracking enable (global)

Enable or disable Endpoint Tracking globally on a switch.

Syntax

- **endpoint-tracking enable**
- **no endpoint-tracking enable**

Default

Disabled

Command Mode

Global Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

endpoint-tracking visibility-mode

Enable or disable visibility mode for Endpoint Tracking.

Syntax

- **default endpoint-tracking visibility-mode**

- **endpoint-tracking visibility-mode**
- **no endpoint-tracking visibility-mode**

Default

The default is disabled.

Command Mode

Global Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

energy-saver (global)

Configures the Energy Saver feature on the switch.

Syntax

- **default energy-saver efficiency-mode**
- **default energy-saver enable**
- **default energy-saver poe-power-saving**
- **energy-saver efficiency-mode**
- **energy-saver enable**
- **energy-saver poe-power-saving**
- **no energy-saver efficiency-mode**
- **no energy-saver enable**
- **no energy-saver poe-power-saving**

Command Parameters

efficiency-mode

Enables efficiency mode on the switch.

- Efficiency mode enables Energy Saver globally and on all ports; it also enables PoE power saving.
- Efficiency mode creates a weekday schedule that starts at 6:00 p.m. and ends at 7:30 a.m.
- During the weekend Energy Saver is always activated.

enable

Enables Energy Saver on the switch.

poe-power-saving

Enables PoE power savings on the switch.

Default

Disabled

Command Mode

Global Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

energy-saver schedule

Configures a scheduled time interval during which the switch will operate in low power state.

Syntax

- **default energy-saver schedule {friday | monday | saturday | sunday | thursday | tuesday | wednesday | weekday | weekend} <hhmm>**
- **energy-saver schedule {friday | monday | saturday | sunday | thursday | tuesday | wednesday | weekday | weekend} <hhmm> activate**
- **energy-saver schedule {friday | monday | saturday | sunday | thursday | tuesday | wednesday | weekday | weekend} <hhmm> deactivate**
- **no energy-saver schedule {friday | monday | saturday | sunday | thursday | tuesday | wednesday | weekday | weekend} <hhmm>**

Command Parameters

{friday | monday | saturday | sunday |thursday | tuesday | wednesday | weekday | weekend}

Specifies the day(s) to enable Energy Saver feature on the switch.

<hhmm>

Specifies the hour and minutes to enable Energy Saver feature on the switch.

activate

Activates the scheduled event.

deactivate

Deactivates the scheduled event.

Default

Disabled

Command Mode

Global Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

fa assignment-timeout

Configure the Fabric Attach (FA) assignment time-out in seconds.

Syntax

- **default fa assignment-timeout**
- **fa assignment-timeout <30-480>**

Command Parameters

<30-480>

Specifies the FA assignment timeout in seconds. The default value is 240 seconds.

Default

None

Command Mode

Global Configuration

fa discovery-timeout

Configure the FA discovery time-out in seconds.

Syntax

- **default fa fa discovery-timeout**
- **fa discovery-timeout <30-480>**

Command Parameters

<30-480>

Specifies the FA discovery timeout in seconds. The default value is 240 seconds.

Default

None

Command Mode

Global Configuration

fa enable

Enable FA globally.

Syntax

- **fa enable**
- **no fa enable** *[-y]*

Command Parameters

[-y]

Suppresses the confirmation message.

Default

None

Command Mode

Global Configuration

fa zero-touch-client

Configure FA zero touch for client.

Syntax

- **fa zero-touch-client standard <camera|phone|router|security-device|srvr-endpt|switch|video|virtual-switch|wap-type1|wap-type2> i-sid <1-15999999>**
- **fa zero-touch-client standard camera i-sid <1-15999999>**
- **fa zero-touch-client standard phone i-sid <1-15999999>**

- **fa zero-touch-client standard router i-sid <1–15999999>**
- **fa zero-touch-client standard security-device i-sid <1–15999999>**
- **fa zero-touch-client standard srvr-endpt i-sid <1–15999999>**
- **fa zero-touch-client standard switch i-sid <1–15999999>**
- **fa zero-touch-client standard video i-sid <1–15999999>**
- **fa zero-touch-client standard virtual-switch i-sid <1–15999999>**
- **fa zero-touch-client standard wap-type1 i-sid <1–15999999>**
- **fa zero-touch-client standard wap-type2 i-sid <1–15999999>**
- **no fa zero-touch-client standard camera i-sid <1–15999999>**
- **no fa zero-touch-client standard phone i-sid <1–15999999>**
- **no fa zero-touch-client standard router i-sid <1–15999999>**
- **no fa zero-touch-client standard security-device i-sid <1–15999999>**
- **no fa zero-touch-client standard srvr-endpt i-sid <1–15999999>**
- **no fa zero-touch-client standard switch i-sid <1–15999999>**
- **no fa zero-touch-client standard video i-sid <1–15999999>**
- **no fa zero-touch-client standard virtual-switch i-sid <1–15999999>**
- **no fa zero-touch-client standard wap-type1 i-sid <1–15999999>**
- **no fa zero-touch-client standard wap-type2 i-sid <1–15999999>**

Command Parameters

camera

Specifies the client type as IP Camera.

i-sid <1–15999999>

Specifies the Client I-SID for I-SID/VLAN binding generation.

phone

Specifies the client type as IP Phone.

router

Specifies the client type as Router.

security-device

Specifies the client type as Security Device.

srvr-endpt

Specifies the client type as Server Endpoint.

standard

Specifies the Standard (pre-defined) client type.

switch

Specifies the client type as Switch.

video

Specifies the client type as IP Video.

virtual-switch

Specifies the client type as Virtual Switch.

wap-type1

Specifies the client type as Wireless AP (Type 1).

wap-type2

Specifies the client type as Wireless AP (Type 2).

Default

The default value is enable.

Command Mode

Global Configuration

filter acl

Use an access control list (ACL) to specify an ordered list of ACEs, or filter rules.

Syntax

- **default filter acl <1-2048>**
- **default filter acl <1-2048> enable**
- **default filter acl <1-2048> name**
- **filter acl <1-2048> enable**
- **filter acl <1-2048> name WORD<0-32>**
- **filter acl <1-2048> type <inVlan | inPort | outPort |inVsn>**
- **filter acl <1-2048> type <inVlan | inPort | outPort |inVsn> name WORD<0-32>**
- **filter acl <1-2048> type <inVlan | inPort | outPort |inVsn> pktType ipv6**
- **filter acl <1-2048> type inVsn matchType <both | terminatingNNIOnly | uniOnly>**
- **filter acl <1-2048> type inVsn matchType <both | terminatingNNIOnly | uniOnly> pkType ipv6**
- **no filter acl <1-2048>**
- **no filter acl <1-2048> enable**

Command Parameters

<1-2048>

Specifies the ACL ID.

matchType <both | terminatingNNIOnly | uniOnly>

For inVsn ACL types, specifies the type of port to associate with the ACL.

The default value is <both>.

name WORD<0-32>

Specifies an optional descriptive name for the ACL.

pktType ipv6

Specifies the packet type as IPv6.

type <inVlan|inPort|outPort|inVsn>

Specifies the access control list (ACL) type. The values inVlan, inPort, and inVsn are ingress ACLs, and outPort is an egress ACL.

Default

None

Command Mode

Global Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

filter acl ace

Use an access control entry (ACE) to define a packet pattern and the desired behavior for packets that carry the pattern.

Syntax

- **default filter acl ace <1-2048> <1-2000>**
- **default filter acl ace <1-2048> <1-2000> enable**
- **default filter acl ace <1-2048> <1-2000> name**
- **filter acl ace <1-2048> <1-2000>**
- **filter acl ace <1-2048> <1-2000> enable**
- **filter acl ace <1-2048> <1-2000> name WORD<1-32>**
- **no filter acl ace <1-2048> <1-2000>**
- **no filter acl ace <1-2048> <1-2000> enable**

Command Parameters

<1-2000>

Specifies the ACE ID.

<1-2048>

Specifies the ACL ID.

enable

Enables an access control entry (ACE) within an access control list (ACL). After you enable an ACE, to make changes, first disable it.

name WORD<1-32>

Specifies an optional descriptive name for the access control entry (ACE) that uses 1-32 characters.

Default

None

Command Mode

Global Configuration

filter acl ace action

Configure the access control entry (ACE) action mode as deny or permit.

Syntax

- **default filter acl ace action <1-2048> <1-2000> { permit | deny } internal-qos**
- **default filter acl ace action <1-2048> <1-2000> { permit | deny } monitor-dst-mlt**
- **default filter acl ace action <1-2048> <1-2000> { permit | deny } monitor-dst-mlt count**
- **default filter acl ace action <1-2048> <1-2000> { permit | deny } monitor-dst-mlt count redirect-next-hop**
- **default filter acl ace action <1-2048> <1-2000> { permit | deny } monitor-dst-mlt redirect-next-hop**
- **default filter acl ace action <1-2048> <1-2000> { permit | deny } monitor-dst-mlt redirect-next-hop unreachable**
- **default filter acl ace action <1-2048> <1-2000> { permit | deny } monitor-dst-ports**
- **default filter acl ace action <1-2048> <1-2000> { permit | deny } redirect-next-hop**

- **default filter acl ace action <1-2048> <1-2000> { permit | deny } remark-dot1p**
- **default filter acl ace action <1-2048> <1-2000> { permit | deny } remark-dscp**
- **default filter acl ace action <1-2048> <1-2000> { permit | deny }**
- **default filter acl ace action <1-2048> <1-2000> { permit | deny } count**
- **filter acl ace action <1-2048> <1-2000> { permit | deny }**
- **filter acl ace action <1-2048> <1-2000> { permit | deny } count**
- **filter acl ace action <1-2048> <1-2000> { permit | deny } internal-qos <0-7>**
- **filter acl ace action <1-2048> <1-2000> { permit | deny } monitor-dst-mlt <1-512>**
- **filter acl ace action <1-2048> <1-2000> { permit | deny } monitor-dst-ports {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all] [all]}**
- **filter acl ace action <1-2048> <1-2000> { permit | deny } redirect-next-hop WORD<1-45>**
- **filter acl ace action <1-2048> <1-2000> { permit | deny } remark-dot1p <0-7>**
- **filter acl ace action <1-2048> <1-2000> { permit | deny } remark-dscp <0-256 | 0-256>**
- **filter acl ace action <1-2048> <1-2000> { permit | deny } redirect-next-hop WORD<1-45> [count | unreachable | vrf {WORD <1-16>}]**
- **filter acl ace action <1-2048> <1-2000> { permit | deny } redirect-next-hop WORD<1-45> unreachable { permit | deny }**
- **filter acl ace action <1-2048> <1-2000> { permit | deny } redirect-next-hop WORD<1-45> unreachable { permit | deny } count**
- **filter acl ace action <1-2048> <1-2000> { permit | deny } redirect-next-hop WORD<1-45> vrf WORD <1-16> unreachable { permit | deny }**
- **filter acl ace action <1-2048> <1-2000> { permit | deny } redirect-next-hop WORD<1-45> vrf WORD <1-16> unreachable { permit | deny } count**
- **no filter acl ace action <1-2048> <1-2000> { permit | deny }**
- **no filter acl ace action <1-2048> <1-2000> { permit | deny } count**
- **no filter acl ace action <1-2048> <1-2000> { permit | deny } internal-qos**
- **no filter acl ace action <1-2048> <1-2000> { permit | deny } monitor-dst-mlt**
- **no filter acl ace action <1-2048> <1-2000> { permit | deny } monitor-dst-mlt count**

- **no filter acl ace action <1-2048> <1-2000> { permit | deny } monitor-dst-mlt count [log [redirect-next-hop]]**
- **no filter acl ace action <1-2048> <1-2000> { permit | deny } monitor-dst-mlt count redirect-next-hop**
- **no filter acl ace action <1-2048> <1-2000> { permit | deny } monitor-dst-mlt log**
- **no filter acl ace action <1-2048> <1-2000> { permit | deny } monitor-dst-mlt log redirect-next-hop**
- **no filter acl ace action <1-2048> <1-2000> { permit | deny } monitor-dst-mlt redirect-next-hop**
- **no filter acl ace action <1-2048> <1-2000> { permit | deny } monitor-dst-ports**
- **no filter acl ace action <1-2048> <1-2000> { permit | deny } remark-dscp**
- **no filter acl ace action <1-2048> <1-2000> { permit | deny } redirect-next-hop**
- **no filter acl ace action <1-2048> <1-2000> { permit | deny } remark-dot1p**

Command Parameters

<1-2000>

Specifies the ACE ID.

<1-2048>

Specifies the ACL ID.

<permit|deny>

Configures the action mode for security access control entries (ACEs). Each ACE has a mode of permit or deny the matched traffic. You can use filters to configure metering of permitted traffic.



Note

For each Security ACE, you must define one or more actions as well as the associated action mode (permit or deny). Otherwise, the security ACE cannot be enabled. There is no default configuration for Security ACEs.

With QoS ACEs, the action mode is not configurable. QoS ACEs are always set to action mode permit.

count

Enables the ability to count matching packets. Use this parameter with either a security or QoS access control entry (ACE). The default is disabled.

internal-qos

Configures the Quality of Service (QoS) level. The default value is 1.

monitor-dst-mlt <1-512>

Configures mirroring to a destination MLT group. This action is a security action.

monitor-dst-ports *{slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]}*

Configures mirroring to a destination port or ports. This action is a security action.

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

redirect-next-hop WORD<1-15>

Specifies the next-hop IP address for redirect mode (a.b.c.d). This action is a security action.

vrf WORD<1-16>

Applies a VRF name to the redirect next hop IP address.

remark-dot1p <0-7>

Specifies the new 802.1 priority bit for matching packets: zero, one, two, three, four, five, six, or seven. This action is a QoS action.

remark-dscp <0-63>

Specifies the new Per-Hop Behavior (PHB) for matching packets:

- phbcs0
- phbcs1
- phbaf11
- phbaf12
- phbaf13
- phbcs2
- phbaf21
- phbaf22
- phbaf23
- phbcs3
- phbaf31
- phbaf32
- phbaf33
- phbcs4
- phbaf41
- phbaf42

- phbaf43
- phbcs5
- phbef
- phbcs6
- phbcs7

This action is a QoS action.

Default

The default to configure ACE actions to meter flows after a packet matches an ACE is disabled.

Command Mode

Global Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

filter acl ace arp

Use access control entry (ACE) ARP entries so that the filter looks for ARP requests or responses.

Syntax

- **default filter acl ace arp <1-2048> <1-2000>**
- **filter acl ace arp <1-2048> <1-2000> operation eq arprequest**
- **filter acl ace arp <1-2048> <1-2000> operation eq arpresponse**
- **no filter acl ace arp <1-2048> <1-2000>**
- **no filter acl ace arp <1-2048> <1-2000> operation**

Command Parameters

<1-2000>

Specifies the ACE ID.

<1-2048>

Specifies the ACL ID.

operation eq <arprequest|arpresponse>

Specifies an ARP operation type of arpRequest or arpResponse. For ARP, only one operator and attribute exist (eq and operation).

Default

None

Command Mode

Global Configuration

filter acl ace ethernet

Use Ethernet access control entries (ACEs) to filter on Ethernet parameters.

Syntax

- **default filter acl ace ethernet <1-2048> <1-2000>**
- **filter acl ace ethernet <1-2048> <1-2000> dst-mac eq WORD<1-1024>**
- **filter acl ace ethernet <1-2048> <1-2000> dst-mac mask WORD<1-1024> WORD<1-1024>**
- **filter acl ace ethernet <1-2048> <1-2000> ether-type eq WORD<1-200>**
- **filter acl ace ethernet <1-2048> <1-2000> port eq {slot/port[/sub-port]}**
- **filter acl ace ethernet <1-2048> <1-2000> src-mac eq WORD<1-1024>**
- **filter acl ace ethernet <1-2048> <1-2000> src-mac mask WORD<1-1024> WORD<1-1024>**
- **filter acl ace ethernet <1-2048> <1-2000> vlan-id eq <1-4059>**
- **filter acl ace ethernet <1-2048> <1-2000> vlan-id mask <1-4059> <0-0xFFF | 0x0-0x0>**
- **filter acl ace ethernet <1-2048> <1-2000> vlan-tag-prio eq <0-7>**
- **filter acl ace ethernet <1-2048> <1-2000> vlan-tag-prio mask <0-7> <0-0x7 | 0x0-0x0>**
- **no filter acl ace ethernet <1-2048> <1-2000>**
- **no filter acl ace ethernet <1-2048> <1-2000> dst-mac**
- **no filter acl ace ethernet <1-2048> <1-2000> ether-type**
- **no filter acl ace ethernet <1-2048> <1-2000> port**
- **no filter acl ace ethernet <1-2048> <1-2000> src-mac**
- **no filter acl ace ethernet <1-2048> <1-2000> vlan-id**
- **no filter acl ace ethernet <1-2048> <1-2000> vlan-tag-prio**

Command Parameters

<1-2000>

Specifies the ACE ID.

<1-2048>

Specifies the ACL ID.

dst-mac <eq|mask> WORD<1-1024>

The <eq|mask> parameter specifies an operator for a field match condition.

The WORD<1-1024> parameter specifies a list of destination MAC addresses separated by a comma or a range of MAC addresses specified from low to high; for example, [AA:BB:CC:DD:EE:FF].

ether-type <eq> WORD<1-200>

The <eq> parameter specifies an operator for a field match condition: equal to. The WORD<1-200> parameter specifies an ether-type name:

- ip
- arp
- ipx802dot3
- ipx802dot2
- ipxSnap
- ipxEthernet2
- appleTalk
- AppleTalk-Arp
- sna802dot2
- snaEthernet2
- netBios
- xns
- vines
- rarp
- PPPoE-discovery
- PPPoE-session

port eq *{slot/port[/sub-port]}*

Identifies a single slot and port. If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

src-mac <eq|mask> WORD<1-1024>

The <eq|mask> parameter specifies an operator for a field match condition: equal to.

The WORD<1-1024> parameter specifies a list of source MAC addresses separated by separated by a comma, or a range of MAC addresses specified from low to high; for example, [AA:BB:CC:DD:EE:FF].

vlan-id <eq|mask> <1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot

configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

vlan-tag-prio <eq|mask> <0-7>

The <eq|mask> parameter specifies an operator for a field match condition. The <0-7> parameter specifies a VLAN tag priority from 0-7 or undefined.

Default

None

Command Mode

Global Configuration

filter acl ace ip

Use IP access control entries (ACEs) to filter on the source IP address, destination IP address, DiffServ Code Point (DSCP), protocol, IP options, IP fragmentation parameters, and routed packets.

Syntax

- **default filter acl ace ip <1-2048> <1-2000>**
- **filter acl ace ip <1-2048> <1-2000> dscp eq <0-63 | 0-63>**
- **filter acl ace ip <1-2048> <1-2000> dst-ip eq {A.B.C.D}**
- **filter acl ace ip <1-2048> <1-2000> dst-ip mask {A.B.C.D} <0-32>**
- **filter acl ace ip <1-2048> <1-2000> dst-ip mask {A.B.C.D} {A.B.C.D}**
- **filter acl ace ip <1-2048> <1-2000> dst-ip range {A.B.C.D} {A.B.C.D}**
- **filter acl ace ip <1-2048> <1-2000> ip-frag-flag eq { noFragment | anyFragment }**
- **filter acl ace ip <1-2048> <1-2000> ip-options any**
- **filter acl ace ip <1-2048> <1-2000> ip-protocol-type eq WORD<1-256>**
- **filter acl ace ip <1-2048> <1-2000> src-ip eq {A.B.C.D}**
- **filter acl ace ip <1-2048> <1-2000> src-ip mask {A.B.C.D} <0-32>**
- **filter acl ace ip <1-2048> <1-2000> src-ip mask {A.B.C.D} {A.B.C.D}**
- **filter acl ace ip <1-2048> <1-2000> dscp mask <0-63 | 0-63> <0-0x40 | 0x0-0x0>**
- **filter acl ace ip <1-2048> <1-2000> dst-ip eq WORD <1-1024>**
- **filter acl ace ip <1-2048> <1-2000> routed-only**
- **no filter acl ace ip <1-2048> <1-2000> dscp**
- **no filter acl ace ip <1-2048> <1-2000> dst-ip**

- **no filter acl ace ip <1-2048> <1-2000> ip-frag-flag**
- **no filter acl ace ip <1-2048> <1-2000> ip-options**
- **no filter acl ace ip <1-2048> <1-2000> ip-protocol-type**
- **no filter acl ace ip <1-2048> <1-2000> src-ip**
- **no filter acl ace ip <1-2048> <1-2000> routed-only**
- **no filter acl ace ip <1-2048> <1-2000>**

Command Parameters

<1-2000>

Specifies the ACE ID.

<1-2048>

Specifies the ACL ID.

dscp <eq|mask> WORD <0-256>

The <eq|mask> parameter specifies an operator for a field match condition. The equals to parameter specifies the PHB name or DSCP value {0 to 256, where 256 => disable}, or:

- phbcs0
- phbcs1
- phbaf11
- phbaf12
- phbaf13
- phbcs2
- phbaf21
- phbaf22
- phbaf23
- phbcs3
- phbaf31
- phbaf32
- phbaf33
- phbcs4
- phbaf41
- phbaf42
- phbaf43
- phbcs5
- phbcs6
- phbef
- phbcs7

dst-ip <eq|mask> WORD <1-1024>

The <eq|mask> parameter specifies an operator for a field match condition.

The WORD<1-1024> parameter specifies the destination IP address list in one of the following formats:

- a.b.c.d
- [w.x.y.z-p.q.r.s]
- [l.m.n.o/mask]
- [a.b.c.d/len]

ip-frag-flag eq <noFragment|anyFragment>

The eq parameter specifies an operator for a field match condition: equal to.

The ip-frag-flag parameter specifies a match option for IP fragments: noFragment or anyFragment.

ip-options any

Matches to an IP option. Any is the only option.

ip-protocol-type <eq> WORD <1-256>

The <eq> parameter specifies an operator for a field match condition: equal to.

The WORD<1-256> parameter specifies one or more IP protocol types:

- (1-256)
- icmp
- tcp
- udp
- ipsecesp
- ipsecah
- ospf
- vrrp
- undefined

src-ip <eq|mask> WORD <1-1024>

The <eq|mask> parameter specifies an operator for a field match condition: equal to, not equal to, less than or equal to, greater than or equal to.

The WORD<1-1024> parameter specifies a source IP address list in one of the following formats:

- a.b.c.d
- [w.x.y.z-p.q.r.s]
- [l.m.n.o/mask]
- [a.b.c.d/len]

routed-only

Specifies a field match condition for IPv4 routed packets only. The default is disabled.

Default

None

Command Mode

Global Configuration

Usage Guidelines

The **routed-only** parameter is not supported for multicast packets.

The *ip-frag-flag* parameter does not apply to 7830 Series.

filter acl ace ipv6

Use access control entry (ACE) IPv6 entries to filter on IPv6 parameters.

Syntax

- **filter acl ace ipv6 <1-2048> <1-2000> dst-ipv6 {eq | mask} WORD<0-255> [WORD<0-255>]**
- **filter acl ace ipv6 <1-2048> <1-2000> nxt-hdr eq {fragment | hop-by-hop | icmpv6 | ipsecah | ipsecesp | noHdr | routing | tcp | udp | undefined}**
- **filter acl ace ipv6 <1-2048> <1-2000> src-ipv6 {eq | mask} WORD<0-255> [WORD<0-255>]**
- **filter acl ace ipv6 <1-2048> <1-2000> traffic-class eq <0-255>**
- **filter acl ace ipv6 <1-2048> <1-2000> routed-only**
- **no filter acl ace ipv6 <1-2048> <1-2000>**
- **no filter acl ace ipv6 <1-2048> <1-2000> dst-ipv6**
- **no filter acl ace ipv6 <1-2048> <1-2000> nxt-hdr**
- **no filter acl ace ipv6 <1-2048> <1-2000> src-ipv6**
- **no filter acl ace ipv6 <1-2048> <1-2000> traffic-class**
- **no filter acl ace ipv6 <1-2048> <1-2000> routed-only**

Command Parameters

<1-2000>

Specifies the ACE ID.

<1-2048>

Specifies the ACL ID.

dst-ipv6 {eq | mask} WORD<0-255>

The <eq|mask> parameter specifies an operator for a field match condition.

The WORD<0-255> parameter specifies a list of destination IPv6 addresses separated by a comma, or a range of IPv6 addresses specified from low to high; for example, [AA:BB:CC:DD:EE:FF].

nxt-hdr eq <fragment | hop-by-hop | icmpv6 | ipsecah | ipsecesp | noHdr | routing | tcp | udp | undefined>

Specify next header of IP header.

src-ipv6 {eq | mask} WORD<0-255>

The <eq|mask> parameter specifies an operator for a field match condition: equal to.

The WORD<0-255> parameter specifies a list of source IPv6 addresses separated by a comma, or a range of IPv6 addresses specified from low to high; for example, [AA:BB:CC:DD:EE:FF].

traffic-class eq <0-255>

Specify traffic class attribute of IPv6 header.

routed-only

Specifies a field match condition for IPv6 routed packets only. The default is disabled.

Default

None

Command Mode

Global Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

filter acl ace policer

Use the policer filter to limit the service and peak rate traffic at the ingress.

Syntax

- **default filter acl ace policer <1-2048> <1-2000>**
- **filter acl ace policer <1-2048> <1-2000> svc-rate <0-4000000000> peak-rate <8-4000000000>**
- **no filter acl ace policer <1-2048> <1-2000>**

Command Parameters

<1-2000>

Specifies the ACE ID.

<1-2048>

Specifies the ACL ID.

policer

Specifies the policer parameters for an ACE.

svc-rate <0-4000000000>

Specifies the rate of transfer of traffic which has to be delivered.

peak-rate <8-4000000000>

Specifies the maximum rate of transfer of traffic above which the packets are dropped at ingress.

Default

None

Command Mode

Global Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

filter acl ace protocol

Use protocol access control entries (ACEs) to filter on the TCP source port, UDP source port, TCP destination port, UDP destination port, ICMP message type, and TCP flags.

Syntax

- **default filter acl ace protocol <1-2048> <1-2000>**
- **filter acl ace protocol <1-2048> <1-2000> dst-port eq WORD<1-60>**
- **filter acl ace protocol <1-2048> <1-2000> dst-port mask WORD<1-60> <0x0-0xFFFF>**
- **filter acl ace protocol <1-2048> <1-2000> icmp-msg-type eq WORD<1-200>**
- **filter acl ace protocol <1-2048> <1-2000> icmpv6-msg-type eq WORD<1-200>**
- **filter acl ace protocol <1-2048> <1-2000> src-port eq <0-65535>**
- **filter acl ace protocol <1-2048> <1-2000> tcp-flags eq WORD<1-50>**

- **filter acl ace protocol <1-2048> <1-2000> tcp-flags mask WORD<1-50> <0-0x3F | 0x0-0x0>**
- **filter acl ace protocol <1-2048> <1-2000> routing-type eq <0-2>**
- **filter acl ace protocol <1-2048> <1-2000> src-port mask <0-65535> <0x0-0xFFFF>**
- **no filter acl ace protocol <1-2048> <1-2000>**
- **no filter acl ace protocol <1-2048> <1-2000> dst-port**
- **no filter acl ace protocol <1-2048> <1-2000> icmp-msg-type**
- **no filter acl ace protocol <1-2048> <1-2000> src-port**
- **no filter acl ace protocol <1-2048> <1-2000> tcp-flags**
- **no filter acl ace protocol <1-2048> <1-2000> routing-type**

Command Parameters

<1-2000>

Specifies the ACE ID.

<1-2048>

Specifies the ACL ID.

dst-port <eq|mask> WORD<1-60>

The <eq|mask> parameter specifies an operator for a field match condition: equal to.

The WORD<1-60> parameter specifies the destination port for the TCP protocol: (0-65535), or {echo| ftpdata| ftpcontrol| ssh| telnet| dns| http|bgp| hdot323| bootpServer| boorpClient| tftp| rip| rtp| rctp| undefined}.

icmp-msg-type <eq> WORD <1-200>

Specifies the Internet Control Message Protocol (ICMP) message type attribute of the protocol.

The <eq> parameter specifies an operator for a field match condition: equal to.

The WORD<1-200> parameter specifies one or more IP protocol types (0-255), or {echoreply|destunreach| sourcequench| redirect| echo-request| routeradv| routerselect| time-exceeded| param-problem| timestamp-request|timestamp-reply| addressmask-request| addressmask-reply| traceroute}.

icmpv6-msg-type <eq> WORD <1-200>

Specifies the ICMPv6 message type attribute of the protocol.

The <eq> parameter specifies an operator for a field match condition: equal to.

The WORD<1-200> parameter specifies one or more Icmpmsg type {0-255} or {destUnreach | pktTooBig | timeExceeded | paramProblem | echoRequest | echoReply | mcastListenReq | mcastListenRpt | mcastListenDone | routerSolicit | routerAdvert | neighborSolicit | neighborAdvert | redirectMsg | nodeInfoReq | nodeInfoRsp | v2McastListenRpt}.

routing-type eq <0-2>

This parameter represents the routing type attribute.

src-port <eq|mask> WORD<1-65535>

The <eq|mask> parameter specifies an operator for a field match condition.

The WORD <1-65535> parameter specifies the destination port for the TCP protocol {0-65535}.

tcp-flags <eq|mask> WORD<1-50>

Specifies TCP-flags attribute of the protocol.

The <eq|mask> parameter specifies an operator for a field match condition.

The WORD <1-50> parameter specifies one or more TCP flags: {none| fin| syn| rst| push| ack| urg|undefined}. The tcp-flags and icmp-msg-type command options support lists.

Default

None

Command Mode

Global Configuration

filter acl i-sid

For inVsn ACL filters, specify the I-SID associated with the customer VLAN (Layer 2 VSN) or the customer VRF (Layer 3 VSN).

Syntax

- **filter acl i-sid <1-2048> <0-15999999>**

Command Parameters

<0-15999999>

Specifies the I-SID associated with the customer VLAN (Layer 2 VSN), the customer VRF (Layer 3 VSN), or the IP Shortcut. The I-SID must already be configured on the fabric node.

<1-2048>

Specifies the ACL ID.

Default

None

Command Mode

Global Configuration

filter acl port

Associate ports with, or remove ports from, an ACL so that filters do or do not apply to port traffic, respectively.

Syntax

- **default filter acl port <1-2048> {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **filter acl port <1-2048> {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **no filter acl port <1-2048> {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

<1-2048>

Specifies the ACL ID.

Default

None

Command Mode

Global Configuration

filter acl set

Configure an access control list (ACL) filter.

Syntax

- **default filter acl set <1-2048> default-action**
- **default filter acl set <1-2048> global-action**
- **default filter acl set <1-2048> global-action monitor-dst-mlt**
- **default filter acl set <1-2048> global-action monitor-dst-ports**
- **filter acl set <1-2048> default-action deny [control-packet-action <deny | permit>]**
- **filter acl set <1-2048> default-action permit [policer svc-rate <0-4000000000> peak-rate <8-4000000000>**
- **filter acl set <1-2048> global-action monitor-dst-mlt <1-512>**
- **filter acl set <1-2048> global-action monitor-dst-ports{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **no filter acl set <1-2048> global-action monitor-dst-mlt**
- **no filter acl set <1-2048> global-action monitor-dst-ports**
- **no filter acl set <1-2048> policer**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

<1-2048>

Specifies the ACL ID.

control-packet-action <deny | permit

In case of no access control entry (ACE) matches, specifies the action to apply on control packets. The default is permit.

default-action <permit|deny>

Specifies the action to be taken when none of the ACEs match. The options are deny or permit.

Note

To configure the ACL default *policer*, you must specify permit as the default action.

To configure a *control-packet-action*, you must specify deny as the default action.

policer

Specifies the default action to be taken to permit or deny the policer. By attaching a policer to an ACL ACE entry, you can limit the bandwidth of an ingress flow for that ACE.

svc-rate <0-4000000000>

Specifies the rate of transfer of traffic which has to be delivered.

peak-rate <8-4000000000>

Specifies the maximum rate of transfer of traffic above which the packets are dropped at ingress.

global-action {monitor-dst-mlt<1-512>|monitor-dst-ports}

Specifies the action to be taken for all access control entry (ACE) matches. The options are: monitor-dst-mlt <1-512> | monitor-dst-ports {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}.

Default

The default action is deny.

Command Mode

Global Configuration

Usage Guidelines

The *monitor-dst-mlt* parameter does not apply to 7830 Series.

filter acl vlan

Associate VLANs with, or remove VLANs from, an access control list (ACL) so that filters do or do not apply to VLAN traffic, respectively.

Syntax

- **default filter acl vlan <1-2048> <1-4059>**
- **filter acl vlan <1-2048> <1-4059>**
- **no filter acl vlan <1-2048> <1-4059>**

Command Parameters

<1-4059>

Specifies the VLAN ID in the range of 0 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

<1-2048>

Specifies the ACL ID.

Default

None

Command Mode

Global Configuration

ike policy WORD<1–32> auth-method

Specifies the authentication method.

Syntax

- **default ike policy WORD<1–32> < auth-method | revocation-check-method>**
- **ike policy WORD<1–32> auth-method digital-certificate peer-name WORD <1-64>**
- **ike policy WORD<1–32> auth-method digital-certificate revocation-check-method <crl | none | ocsp>**
- **ike policy WORD<1–32> auth-method pre-shared-key**
- **no ike policy WORD<1-32> [auth-method]**

Command Parameters

digital-certificate

Configures the authentication method as digital-certificate.

peer-name WORD <1-64>

Specifies peer identity name for IKE phase 1.

pre-shared-key

Configures the authentication method to use a pre-shared-key.

revocation-method <crl|none|ocsp>

Specifies the revocation check method.

WORD<1–32>

Specifies the name of the IKE Phase 1 policy.

Default

The default is pre-shared key.

Command Mode

Global Configuration

ike policy WORD<1–32> dpd-timeout

Configure the Dead-Peer Detection timeout in seconds for the IKE Phase 1 policy.

Syntax

- **default ike policy WORD<1–32> dpd-timeout**
- **ike policy WORD<1–32> dpd-timeout <0–4294967295>**

Command Parameters

<0-4294967295>

Configure the Dead-Peer Detection timeout in seconds.

WORD<1–32>

Specifies the name of the IKE Phase 1 policy.

Default

The default is 300 seconds.

Command Mode

Global Configuration

ike policy WORD<1–32> enable

Enables the admin state of IKE Phase 1 policy.

Syntax

- **default ike policy WORD<1–32> enable**
- **ike policy WORD<1–32> enable**
- **no ike policy WORD<1-32> [enable]**

Command Parameters

WORD<1–32>

Specifies the name of the IKE Phase 1 policy.

Default

None

Command Mode

Global Configuration

ike policy WORD<1–32> laddr

Use this command to specify the local and remote IP address.

Syntax

- **ike policy WORD<1–32> laddr WORD<1–256> raddr WORD<1–256>**

Command Parameters

laddr WORD<1–256>

Specifies the local IPv4 or IPv6 address.

raddr WORD<1–256>

Specifies the remote IPv4 or IPv6 address.

WORD<1–32>

Specifies the name of the IKE Phase 1 policy.

Default

None

Command Mode

Global Configuration

ike policy WORD<1–32> p2-pfs

Enables the Phase 2 perfect forward secrecy.

Syntax

- **default ike policy WORD<1–32> p2–pfs [dh-group] [use-ike-group]**

- **ike policy WORD<1–32> p2–pfs <disable | enable> [dh-group <modp768 | modp1024 | modp2048 | any>] [use-ike-group <disable | enable>]**
- **no ike policy WORD<1-32> [p2-pfs]**

Command Parameters

dh-group <modp768|modp1024|modp2048|any>

Configures the Diffie-Hellman (DH) group to be used for Phase 2 perfect forward secrecy (PFS). The default value is modp2048.

use-ike-group <enable|disable>

Specifies whether to use the IKE Phase 1 DH group for Phase 2 PFS. The default is enable.

WORD<1–32>

Specifies the name of the IKE Phase 1 policy.

Default

None

Command Mode

Global Configuration

ike policy WORD<1–32> pre-shared-key

Configures the pre-shared-key.

Syntax

- **ike policy WORD<1-32> pre-shared-key WORD<0-32>**

Command Parameters

WORD<0–32>

Configures the pre-shared-key. For Federal Information Processing Standards (FIPS) compliance, the minimum length is 14 characters.

WORD<1–32>

Specifies the name of the IKE Phase 1 policy.

Default

None

Command Mode

Global Configuration

ike profile

Use this command to configure an IKE Phase 1 profile.

Syntax

- **default ike profile WORD<1–32> [dh-group] [encrypt-algo] [encrypt-key-len] [hash-algo] [lifetime-sec]**
- **ike profile WORD<1–32>**
- **ike profile WORD<1–32> dh-group <modp768 | modp1024 | modp2048 | any>**
- **ike profile WORD<1–32> encrypt-algo <desCbc | 3DesCbc | aesCbc | any>**
- **ike profile WORD<1–32> encrypt-key-len <128 | 192 | 256>**
- **ike profile WORD<1–32> hash-algo <MD5 | SHA | SHA256 | any>**
- **ike profile WORD<1–32> lifetime-sec <0-4294967295>**
- **no ike profile WORD<1–32>**

Command Parameters

dh-group <modp768|modp1024|modp2048|any>

Specifies the Diffie-Hellman (DH) group. DH groups categorize the key used in the key exchange process, by its strength. The key from a higher group number is more secure. The default value is modp2048.

encrypt-algo <desCbc|3DesCbc|aesCbc|any>

Specifies the type of encryption algorithm. The default value is aesCbc.

encrypt-key-len <128|192|256>

Specifies the length of the encryption key. The default is 256.

hash-algo <md5|sha|sha256|any>

Specifies the type of hash algorithm. The default value is sha256.

lifetime-sec <0-4294967295>

Specifies the lifetime value in seconds. The lifetime ensures that the peers renegotiate the SAs just before the expiry of the lifetime value, to ensure that Security Associations are not compromised. The default value is 86400 seconds.

WORD<1–32>

Specifies the IKE profile name.

Default

None

Command Mode

Global Configuration

ike v2-profile

Use this command to configure an IKE Phase 2 profile.

Syntax

- **default ike v2-profile WORD<1-32> dh-group**
- **default ike v2-profile WORD<1-32> encrypt-algo**
- **default ike v2-profile WORD<1-32> encrypt-key-len**
- **default ike v2-profile WORD<1-32> hash-algo**
- **default ike v2-profile WORD<1-32> integrity-algo**
- **default ike v2-profile WORD<1-32> lifetime-sec**
- **ike v2-profile WORD<1-32>**
- **ike v2-profile WORD<1-32> dh-group <any>**
- **ike v2-profile WORD<1-32> dh-group <modp1024>**
- **ike v2-profile WORD<1-32> dh-group <modp2048>**
- **ike v2-profile WORD<1-32> dh-group <modp768>**
- **ike v2-profile WORD<1-32> encrypt-algo <3DesCbc>**
- **ike v2-profile WORD<1-32> encrypt-algo <aesCbc>**
- **ike v2-profile WORD<1-32> encrypt-algo <any>**
- **ike v2-profile WORD<1-32> encrypt-algo <desCbc>**
- **ike v2-profile WORD<1-32> encrypt-key-len <128|192|256>**
- **ike v2-profile WORD<1-32> hash-algo <any>**
- **ike v2-profile WORD<1-32> hash-algo <md5>**
- **ike v2-profile WORD<1-32> hash-algo <sha>**
- **ike v2-profile WORD<1-32> hash-algo <sha256>**
- **ike v2-profile WORD<1-32> integrity-algo <aes-xcbc>**
- **ike v2-profile WORD<1-32> integrity-algo <any>**
- **ike v2-profile WORD<1-32> integrity-algo <hmac-md5>**
- **ike v2-profile WORD<1-32> integrity-algo <hmac-sha>**
- **ike v2-profile WORD<1-32> integrity-algo <hmac-sha256>**
- **ike v2-profile WORD<1-32> lifetime-sec <0-4294967295>**
- **no ike v2-profile WORD<1-32>**

Command Parameters

dh-group <modp768|modp1024|modp2048|any

Specifies the Diffie-Hellman (DH) group. DH groups categorize the key used in the key exchange process, by its strength. The key from a higher group number is more secure. The default value is modp2048.

encrypt-algo <desCbc|3DesCbc|aesCbc|any>

Specifies the type of encryption algorithm. The default value is aesCbc.

encrypt-key-len <128|192|256>

Specifies the length of the encryption key. The default is 256.

hash-algo <md5|sha|sha256|any>

Specifies the type of hash algorithm. The default value is sha256.

integrity-algo <hmac-md5|hmac-sha|hmacsha256|aes-xcbc|any>

Specifies the type of integrity algorithm. The default is sha256.

lifetime-sec <0-4294967295>

Specifies the lifetime value in seconds. The lifetime ensures that the peers renegotiate the SAs just before the expiry of the lifetime value, to ensure that Security Associations are not compromised. The default value is 86400 seconds.

WORD<1–32>

Specifies the IKE v2–profile name.

Default

None

Command Mode

Global Configuration

interface GigabitEthernet

Use this command to enter Interface Configuration mode for a GigabitEthernet slot and port.

Syntax

- **interface GigabitEthernet {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

Global Configuration

interface Loopback

Use this command to enter Interface Configuration mode for a loopback interface.

Syntax

- **interface Loopback <1-256>**

Command Parameters

<1-256>

Specifies the loopback ID.

Default

None

Command Mode

Global Configuration

Usage Guidelines

To delete a loopback interface, enter Loopback Interface Configuration mode to remove the IP interface configuration.

interface mgmtEthernet

Use this command to enter Interface Configuration mode for a management interface.

Syntax

- **interface mgmtEthernet mgmt**

Default

None

Command Mode

Global Configuration

Usage Guidelines

This mode only applies to hardware with a dedicated, physical management interface.

interface mlt

Use this command to enter Interface Configuration mode for an MLT.

Syntax

- **interface mlt <1-512>**

Command Parameters

<1-512>

Specifies the MLT ID.

Default

None

Command Mode

Global Configuration

interface vlan

Use this command to enter Interface Configuration mode for a VLAN.

Syntax

- **interface Vlan <1-4059>**

Command Parameters

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

Global Configuration

ip alternative-route (globally)

Enable the alternative route feature globally.

Syntax

- **default ip alternative-route**
- **ip alternative-route**
- **no ip alternative-route**

Command Parameters

alternative-route

Enables or disables the Alternative Route feature. The default value is enabled.

If the alternative-route parameter is disabled, all existing alternative routes are removed. When the parameter is enabled, all alternative routes are re-added.

Default

The default is enabled.

Command Mode

Global Configuration

ip arp

Configure ARP static entries to modify the ARP parameters on the device. The only way to change a static ARP is to delete the static ARP entry and create a new entry with new information.

Syntax

- **default ip arp {A.B.C.D}**
- **default ip arp request-threshold**
- **default ip arp timeout**
- **ip arp {A.B.C.D} 0x00:0x00:0x00:0x00:0x00:0x00 {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} vid <1-4059>**
- **ip arp {A.B.C.D} 0x00:0x00:0x00:0x00:0x00:0x00 {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **ip arp request-threshold <50-1000>**
- **ip arp timeout <1-32767>**
- **no ip arp {A.B.C.D}**

Command Parameters

{A.B.C.D}

Specifies the IP address.

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

0x00:0x00:0x00:0x00:0x00:0x00

Specifies the MAC address in hexadecimal format. The MAC address parameter does not accept MAC addresses beginning with 01:00:5e (01:00:5e:00:00:00 to 01:00:5e:ff:ff:ff inclusive).

timeout <1-32767>

Configures the timeout value.

vid *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal

use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

Global Configuration

ip as-list

Use an asynchronous (AS) path list to restrict the routing information a router learns or advertises to and from a neighbor. The AS path list acts as a filter that Match AS paths.

Syntax

- **ip as-list <1-1024> memberId <0-65535> <permit|deny> as-path WORD<0-1536>**

Command Parameters

<permit|deny>

Permits or denies access for matching conditions.

as-list <1-1024>

Creates the specified AS-path list entry.

as-path WORD <0-1536>

Specifies an integer value between 0 and 1536 placed within quotation marks "."

memberId <0-65535>

Adds a regular expression entry to the specified AS-path list. It is an integer value between 0 and 65 535.

Default

None

Command Mode

Global Configuration

ip community-list

Use community lists to specify permitted routes by using their BGP community. This list acts as a filter that Match communities or AS numbers

Syntax

- **ip community-list <1-1024> memberId <0-65535> <permit|deny> community-string WORD<0-256>**
- **no ip community-list <1-1024>**
- **no ip community-list <1-1024> community-string WORD<0-256>**
- **no ip community-list <1-1024> memberid <0-65535>**

Command Parameters

<permit|deny>

Sets the access mode, which permits or denies access for matching conditions.

community-list <1-1024>

Creates the specified community list entry. <1-1024> specifies the list id.

community-string WORD<0-256>

Specifies an alphanumeric string value with a string length of 0 to 1536 characters. This string value is either an AS num: community-value or a well-known community string. Well known communities include: internet no-export no-advertise local-as (known as NO_EXPORT_SUBCONFED).

memberId <0-65535>

Adds an entry to the community list. <0-65535> is an integer value that represents the member ID in the community list.

Default

None

Command Mode

Global Configuration

ip dhcp-relay fwd-path

Create the forwarding path from the client to the server.

Syntax

- **default ip dhcp-relay fwd-path <A.B.C.D> <A.B.C.D>**
- **ip dhcp-relay fwd-path {A.B.C.D} {A.B.C.D}**

- **no ip dhcp-relay fwd-path <A.B.C.D> <A.B.C.D>**

Command Parameters

fwd-path <A.B.C.D> <A.B.C.D>

Configures the forwarding path from the client to the server. A.B.C.D is the IP address configured on an interface (a locally configured IP address) to forward or relay BootP or Dynamic Host Configuration Protocol (DHCP). The relay can also be a VRRP address.

A.B.C.D is the IP address of the DHCP server in the network. If this IP address corresponds to the locally configured IP network, the DHCP packet is broadcast out from the interface.

Default

None

Command Mode

Global Configuration

ip dhcp-relay fwd-path enable

Enable the forwarding path from the client to the server.

Syntax

- **default ip dhcp-relay fwd-path {A.B.C.D} {A.B.C.D}**
- **ip dhcp-relay fwd-path {A.B.C.D} {A.B.C.D} disable**
- **ip dhcp-relay fwd-path {A.B.C.D} {A.B.C.D} enable**
- **no ip dhcp-relay fwd-path {A.B.C.D} {A.B.C.D} enable**

Command Parameters

disable

Disables Dynamic Host Configuration Protocol (DHCP) relaying on the path from the IP address to the server.

fwd-path <A.B.C.D> <A.B.C.D> enable

Enables Dynamic Host Configuration Protocol (DHCP) relaying on the path from the IP address to the server.

The first *<A.B.C.D>* variable is the agent IP address configured on an interface (a locally configured IP address).

The second *<A.B.C.D>* variable is the IP address of the DHCP server in the network. If this IP address corresponds to the locally configured IP network, the DHCP packet is broadcast out from the interface.

Default

The ip dhcp-relay fwd-path default state is disabled.

Command Mode

Global Configuration

Usage Guidelines

If the agent IP address (the first *<A.B.C.D>* variable) is a VLAN or port IP address, you must enable DHCP Relay on that VLAN or port by running **ip dhcp-relay** within the VLAN context. However, if the first *<A.B.C.D>* variable is a VRRP address, you do not need to enable DHCP Relay on the VLAN or port in which the VRRP address resides.

ip dhcp-relay fwd-path mode

Modify Dynamic Host Configuration Protocol (DHCP) mode to forward BootP messages only, DHCP messages only, or both.

Syntax

- **default ip dhcp-relay fwd-path <A.B.C.D> <A.B.C.D> mode**
- **ip dhcp-relay fwd-path {A.B.C.D} {A.B.C.D} mode bootp**
- **ip dhcp-relay fwd-path {A.B.C.D} {A.B.C.D} mode bootp_dhcp**
- **ip dhcp-relay fwd-path {A.B.C.D} {A.B.C.D} mode dhcp**

Command Parameters

fwd-path <A.B.C.D> <A.B.C.D> mode <bootp|bootp-dhcp|dhcp>

Modifies the Dynamic Host Configuration Protocol (DHCP) mode to forward BootP messages only, DHCP messages only, or both. The default is both.

mode is {bootp | bootp_dhcp | dhcp}.

Default

The default mode is both.

Command Mode

Global Configuration

ip dhcp-relay fwd-path {A.B.C.D} {A.B.C.D} src-port-67 (globally)

Configure a forwarding path with source port 67 in a User Datagram Protocol (UDP) globally.

Syntax

- **default ip dhcp-relay fwd-path {A.B.C.D} {A.B.C.D} src-port-67**
- **ip dhcp-relay fwd-path {A.B.C.D} {A.B.C.D} src-port-67**
- **no ip dhcp-relay fwd-path {A.B.C.D} {A.B.C.D} src-port-67**

Command Parameters

src-port-67

Specifies the UDP source port to 67 for BOOTP request. The default is 68.

Default

None

Command Mode

Global Configuration

ip dhcp-server authoritative

Assigns DHCP Server into authoritative mode.

Syntax

- **ip dhcp-server authoritative**
- **no ip dhcp-server authoritative**

Default

The default is disabled.

Command Mode

Global Configuration

ip dhcp-server custom-option-data

Assigns a global data value to an existing DHCP custom option for DHCP Server.

Syntax

- **ip dhcp-server custom-option-data <224-254> value WORD<0-128>**
- **no ip dhcp-server custom-option-data <224-254>**

Command Parameters

<224-254>

Specifies the DHCP code for the custom option.

WORD<0-128>

Assigns a data value to the Custom Option. The value must use the data type that is specified in the Custom Option definition (IPv4 address, string, or integer).

Default

None

Command Mode

Global Configuration

Usage Guidelines

For information about precedence rules between scopes, see *Fabric Engine User Guide*.

ip dhcp-server custom-option-def

Defines a DHCP custom option that the DHCP Server can provide to clients.

Syntax

- **ip dhcp-server custom-option-def <224-254> type <ipv4-address | uint32 | string> [name WORD<0-128>]**
- **no ip dhcp-server custom-option-def <224-254> [name]**

Command Parameters

<224-254>

Specifies a DHCP code from the unassigned range to the custom option.

name WORD<0-128>

Specifies a readable text label that identifies the custom option.

type <ipv4-address | uint32 | string>

Specifies that the data type for the custom option must be an IPv4 address, a 32-bit integer, or a string.

Default

None

Command Mode

Global Configuration

Usage Guidelines

This command defines the custom option for all DHCP subnets that this DHCP Server services.

To assign a data value to the option, use the ip dhcp-server custom-option-data on page 468 command in Global Configuration mode for DHCP Server or the custom-option-data <224-254> value WORD<0-128> on page 73 command in DHCP Server Subnet Configuration mode for a specific subnet.

ip dhcp-server domain-name

Assigns a domain name to DHCP Server.

Syntax

- **ip dhcp-server domain-name WORD<1-128>**
- **no ip dhcp-server domain name**

Command Parameters

WORD<1-128>

Specifies the domain name.

Default

None

Command Mode

Global Configuration

Usage Guidelines

For information about precedence rules between scopes, see *Fabric Engine User Guide*.

ip dhcp-server domain-name-servers

Assigns DNS addresses for the DHCP Server to advertise to clients.

Syntax

- **ip dhcp-server domain-name-servers {A.B.C.D} [...]**
- **no ip dhcp-server domain-name-servers [A.B.C.D]**

Command Parameters

{A.B.C.D}

Specifies the IPv4 address of the DNS server. You can assign up to eight server addresses. Include each server address on the same command line with a space between each address.

Default

None

Command Mode

Global Configuration

Usage Guidelines

For information about precedence rules between scopes, see *Fabric Engine User Guide*.

ip dhcp-server enable

Enables DHCP Server on the switch.

Syntax

- **ip dhcp-server enable**
- **no ip dhcp-server enable**

Default

The default is disabled.

Command Mode

Global Configuration

Usage Guidelines

To enable DHCP Server:

- You must configure a management CLIP IP address.
- You must configure a DHCP subnet.

ip dhcp-server ha-peer

Assigns a peer switch for DHCP Server High Availability (HA).

Syntax

- **ip dhcp-server ha-peer {A.B.C.D}**
- **no ip dhcp-server ha-peer**

Command Parameters

{A.B.C.D}

Specifies the IPv4 address of the HA peer switch.

Default

None

Command Mode

Global Configuration

ip dhcp-server ha-role

Assigns the role of this switch within a DHCP Server High Availability (HA) pair.

Syntax

- **ip dhcp-server ha-role {primary | standby}**
- **default ip dhcp-server ha-role**

Command Parameters

primary

Specifies that this switch is the primary DHCP Server in an HA pair. The primary switch provides DHCP services so long as the DHCP server is active.

standby

Specifies that this switch is the standby DHCP Server in an HA pair. The standby switch provides DHCP services only when the primary DHCP server is inactive.

Default

If you configure an HA pair, but do not specify an HA-role, the switch with the lower IP address is the primary DHCP Server.

Command Mode

Global Configuration

ip dhcp-server lease-time

Assigns the global lease expiry timer for DHCP Server.

Syntax

- **ip dhcp-server lease-time <60-300000000>**
- **default ip dhcp-server lease-time**

Command Parameters

<60-300000000>

Specifies the lease expiration timer, in seconds.

Default

The default is 86400.

Command Mode

Global Configuration

Usage Guidelines

For information about precedence rules between scopes, see *Fabric Engine User Guide*.

ip dhcp-server netbios-name-server

Assigns a NetBIOS name server for the DHCP Server to send to the client.

Syntax

- **ip dhcp-server netbios-name-server {A.B.C.D}**
- **no ip dhcp-server netbios-name-server**

Command Parameters

{A.B.C.D}

Specifies the IPv4 address of the NetBIOS name server.

Default

None

Command Mode

Global Configuration

Usage Guidelines

For information about precedence rules between scopes, see *Fabric Engine User Guide*.

ip dhcp-server netbios-node-type

Specifies the node type of the NetBIOS name server for the DHCP Server to send to the client.

Syntax

- **ip dhcp-server netbios-node-type <0x1|0x2|0x4|0x8>**
- **default ip dhcp-server netbios-node-type**

Command Parameters

<0x1|0x2|0x4|0x8>

Specifies the node type for the NetBIOS name server. The following list provides definitions of the allowed values:

- `0x1`—B-node
- `0x2`—P-node
- `0x4`—M-node
- `0x8`—H-node

Default

The default is 0x0 (unconfigured).

Command Mode

Global Configuration

Usage Guidelines

For information about precedence rules between scopes, see *Fabric Engine User Guide*.

ip dhcp-server ntp-servers

Assigns global NTP servers for the DHCP Server to send to the client.

Syntax

- **ip dhcp-server ntp-servers {A.B.C.D} […]**
- **no ip dhcp-server ntp-servers [A.B.C.D]**

Command Parameters

{A.B.C.D}

The IPv4 address of the NTP server. You can enter up to eight server addresses with this command. Include each IP address on the same command line with a space between each address.

Default

None

Command Mode

Global Configuration

Usage Guidelines

For information about precedence rules between scopes, see *Fabric Engine User Guide*.

ip dhcp-server subnet

Creates a new DHCP Server subnet. You can also use this command to enter DHCP Server Subnet Configuration mode for an existing DHCP subnet.

Syntax

- **ip dhcp-server subnet {A.B.C.D/X}**
- **no ip dhcp-server subnet {A.B.C.D/X}**

Command Parameters

{A.B.C.D/X}

Specifies the subnet network address and mask.

Default

None

Command Mode

Global Configuration

ip dhcp-server tftp-server-list {A.B.C.D}

Configures a TFTP server list for the DHCP server to send to clients.

Syntax

- **ip dhcp-server tftp-server-list {A.B.C.D} [... {A.B.C.D}]**
- **no ip dhcp-server tftp-server-list**

Command Parameters

{A.B.C.D} [... {A.B.C.D}]

Specifies a list of up to eight TFTP server IP addresses. This command uses DHCP Server Option 150, which clients, such as IP Phones, can request from a DHCP Server to obtain configuration files or other information from a TFTP server.

Default

None

Command Mode

Global Configuration

Usage Guidelines

For information about precedence rules between scopes, see *Fabric Engine User Guide*.

ip dhcp-server tftp boot-file-name WORD<0-128>

Specifies the file name of the TFTP boot image file for the DHCP Server to send to clients.

Syntax

- **ip dhcp-server tftp boot-file-name WORD<0-128>**
- **no ip dhcp-server tftp boot-file-name**

Command Parameters

WORD<0-128>

Specifies the boot image file name.

Default

None

Command Mode

Global Configuration

Usage Guidelines

You must assign a TFTP server IP address (Option 66) for the DHCP Server to send to clients before you can configure the other TFTP parameters.

For information about precedence rules between scopes, see *Fabric Engine User Guide*.

ip dhcp-server tftp server-ip {A.B.C.D}

Specifies a TFTP server IP address for the DHCP Server to send to clients.

Syntax

- **ip dhcp-server tftp server-ip {A.B.C.D}**
- **no ip dhcp-server tftp server-ip**

Command Parameters

{A.B.C.D}

Specifies the IPv4 address of the TFTP server.

Default

None

Command Mode

Global Configuration

Usage Guidelines

You must assign a TFTP server IP address for the DHCP Server to send to clients before you can configure the other TFTP parameters.

This command uses DHCP Server Option 66.

For information about precedence rules between scopes, see *Fabric Engine User Guide*.

ip dhcp-server tftp server-name WORD<0-64>

Specifies a TFTP server name for the DHCP Server to send to clients.

Syntax

- **ip dhcp-server tftp server-name WORD<0-64>**
- **no ip dhcp-server tftp server-name**

Command Parameters

WORD<0-64>

Specifies the server name of the TFTP server.

Default

None

Command Mode

Global Configuration

Usage Guidelines

You must assign a TFTP server IP address (Option 66) for the DHCP Server to send to clients before you can configure the other TFTP parameters.

For information about precedence rules between scopes, see *Fabric Engine User Guide*.

ip dhcp-snooping binding

Adds static binding entry to the DHCP binding table.

Syntax

- **ip dhcp-snooping binding <1-4059> 0x00:0x00:0x00:0x00:0x00:0x00 ip {A.B.C.D} port {slot/port[sub-port]}**
- **ip dhcp-snooping binding <1-4059> 0x00:0x00:0x00:0x00:0x00:0x00 ip {A.B.C.D} port {slot/port[sub-port]} [expiry <0-2147483646>]**
- **no ip dhcp-snooping binding <1-4059> 0x00:0x00:0x00:0x00:0x00:0x00**

Command Parameters

<1-4059>

Specifies the VLAN ID.

0x00:0x00:0x00:0x00:0x00:0x00

Specifies the MAC address of the DHCP client.

expiry <0-2147483646>

Specifies the expiry time (in seconds) for the DHCP client.

ip {A.B.C.D}

Specifies the IP address of the DHCP client.

port {slot/port[sub-port]}

Specifies the switch port to which the DHCP client connects.

Default

None

Command Mode

Global Configuration

ip dhcp-snooping enable

Enables DHCP Snooping globally.

Syntax

- **default ip dhcp-snooping enable**
- **ip dhcp-snooping enable**
- **no ip dhcp-snooping enable**

Default

Disabled

Command Mode

Global Configuration

ip dhcp-server vendor-class <1-255> custom-option-data

Configures custom option data for the vendor class.

Syntax

- **ip dhcp-server vendor-class <1-255> custom-option-data <224-254> value WORD<0-128>**
- **no ip dhcp-server vendor-class <1-255> custom-option-data <224-254>**

Command Parameters

<1-255>

Specifies the vendor class ID.

custom-option-data <224-254>

Specifies the DHCP code for the custom option.

value WORD<0-128>

Specifies a data value to apply to the vendor class.

Default

None

Command Mode

Global Configuration

Usage Guidelines

For information about precedence rules between scopes, see *Fabric Engine User Guide*.

ip dhcp-server vendor-class <1-255> domain-name

Configures a domain name for the specified vendor class.

Syntax

- **ip dhcp-server vendor-class <1-255> domain-name WORD<1-128>**
- **no ip dhcp-server vendor-class <1-255> domain-name**

Command Parameters

<1-255>

Specifies the vendor class ID.

domain-name WORD<1-128>

Specifies the domain name advertised on the vendor class.

Default

None

Command Mode

Global Configuration

Usage Guidelines

For information about precedence rules between scopes, see *Fabric Engine User Guide*.

ip dhcp-server vendor-class <1-255> matches

Configures the Vendor Class Identifier (VCI) for the vendor class.

Syntax

- **ip dhcp-server vendor-class <1-255> matches WORD<1-128>**
- **no ip dhcp-server vendor-class <1-255>**

Command Parameters

<1-255>

Specifies the vendor class ID.

matches WORD<1-128>

Specifies the Vendor Class Identifier (VCI) for the vendor class.

Default

None

Command Mode

Global Configuration

ip dhcp-server vendor-class <1-255> tftp boot-file-name

Configures the TFTP boot file name.

Syntax

- **ip dhcp-server vendor-class <1-255> tftp boot-file-name WORD<0-128>**
- **no ip dhcp-server vendor-class <1-255> tftp boot-file-name**

Command Parameters

<1-255>

Specifies the vendor class ID.

WORD<0-128>

Specifies the TFTP server boot file name advertised on the vendor class.

Default

None

Command Mode

Global Configuration

Usage Guidelines

For information about precedence rules between scopes, see *Fabric Engine User Guide*.

ip dhcp-server vendor-class <1-255> tftp server-ip

Configures the TFTP server IP address.

Syntax

- **ip dhcp-server vendor-class <1-255> tftp server-ip {A.B.C.D}**
- **no ip dhcp-server vendor-class <1-255> tftp server-ip {A.B.C.D}**

Command Parameters

<1-255>

Specifies the vendor class ID.

tftp server-ip {A.B.C.D}

Specifies the IPv4 address of the TFTP server advertised on the vendor class.

Default

None

Command Mode

Global Configuration

Usage Guidelines

For information about precedence rules between scopes, see *Fabric Engine User Guide*.

ip dhcp-server vendor-class <1-255> tftp server-name

Configures the TFTP server name.

Syntax

- **ip dhcp-server vendor-class <1-255> tftp server-name WORD<0-64>**
- **no ip dhcp-server vendor-class <1-255> tftp server-name**

Command Parameters

<1-255>

Specifies the DHCP Server vendor class ID.

tftp server-name WORD<0-64>

Specifies the TFTP server name advertised on the vendor class.

Default

None

Command Mode

Global Configuration

Usage Guidelines

For information about precedence rules between scopes, see *Fabric Engine User Guide*.

ip dhcp-server vendor-class <1-255> vendor-option-data

Configures vendor option data for a vendor class.

Syntax

- **ip dhcp-server vendor-class <1-255> vendor-option-data <1-255> value WORD<0-128>**
- **no ip dhcp-server vendor-class <1-255> vendor-option-data <1-255>**

Command Parameters

<1-255>

Specifies the vendor class ID.

vendor-option-data <1-255>

Specifies the DHCP code that identifies the vendor option.

value WORD<0-128>

Specifies a data value to apply to the vendor class.

Default

None

Command Mode

Global Configuration

Usage Guidelines

For information about precedence rules between scopes, see *Fabric Engine User Guide*.

ip dhcp-server vendor-option-data

Configures vendor option data.

Syntax

- **ip dhcp-server vendor-option-data <1-255> value WORD<0-128>**
- **no ip dhcp-server vendor-option-data <1-255>**

Command Parameters

<1-255>

Specifies the vendor ID.

value WORD<0-128>

Specifies the value to apply to the vendor option.

Default

None

Command Mode

Global Configuration

Usage Guidelines

For information about precedence rules between scopes, see *Fabric Engine User Guide*.

ip dhcp-server vendor-option-def

Configures the vendor option definition.

Syntax

- **ip dhcp-server vendor-option-def <1-255> type {ipv4-address | string | uint32} [name WORD<0-128>]**
- **no ip dhcp-server vendor-option-def <1-255> [name]**

Command Parameters

<1-255>

Specifies the DHCP vendor option definition.

type {ipv4-address | string | uint32}

Specifies the vendor option definition data type. The data type can be an IPv4 address, 32-bit integer, or string.

name WORD<0-128>

Specifies a text label that identifies the vendor option definition.

Default

None

Command Mode

Global Configuration

ip domain-name

Configure the Domain Name Service (DNS) to establish the mapping between a name and an IP address.

Syntax

- **default ip domain-name**
- **ip domain-name WORD<0-255>**
- **no ip domain-name**

Command Parameters

WORD<0-255>

Configures the default domain name.

Default

None

Command Mode

Global Configuration

ip ecmp

Enable Equal Cost Multipath protocol (ECMP). If the ECMP parameter is disabled, all existing ECMP routes are removed. When ECMP is enabled, all ECMP routes are re-added.

Syntax

- **default ip ecmp**
- **default ip ecmp max-path**
- **ip ecmp**
- **ip ecmp max-path <1-8>**
- **ip ecmp <pathlist-1 | pathlist-2 | pathlist-3 | pathlist-4 | pathlist-5 | pathlist-6 | pathlist-7 | pathlist-8> WORD<0-64>**
- **no ip ecmp**
- **no ip ecmp <pathlist-1 | pathlist-2 | pathlist-3 | pathlist-4 | pathlist-5 | pathlist-6 | pathlist-7 | pathlist-8>**

Command Parameters

max-path <1-8>

Specifies the maximum number of ECMP paths. The default is 1.

<pathlist-1 | pathlist-2 | pathlist-3 | pathlist-4 | pathlist-5 | pathlist-6 | pathlist-7 | pathlist-8> WORD<0-64>

Configures one equal-cost path to the same destination prefix. To remove the policy, enter a blank string. To configure this parameter, you must globally enable Equal Cost Multipath (ECMP).

Default

The default is disabled.

Command Mode

Global Configuration

ip forward-protocol udp

Configure UDP protocols to determine which UDP broadcasts are forwarded.

Syntax

- **default ip forward-protocol udp**
- **default ip forward-protocol udp <1-65535>**
- **ip forward-protocol udp <1-65535> WORD<1-15>**
- **no ip forward-protocol udp <1-65535>**

Command Parameters

<1-65535> WORD/1-15 <1-15>

Creates a new UDP protocol. <1-65535>WORD <1-15>is the UDP protocol name as a string.

Default

None

Command Mode

Global Configuration

ip forward-protocol udp portfwd

Configure a UDP port forward entry to add or remove a port forward entry.

Syntax

- **default ip forward-protocol udp portfwd <1-65535> {A.B.C.D}**
- **ip forward-protocol udp portfwd <1-65535> {A.B.C.D}**
- **no ip forward-protocol udp portfwd <1-65535> {A.B.C.D}**

Command Parameters

<1-65535> <A.B.C.D>

Adds a UDP protocol port to the specified port forwarding list.

1-65535 is a UDP protocol port in the range of 1 to 65535.

A.B.C.D is an IP address in a.b.c.d format.

Default

None

Command Mode

Global Configuration

ip forward-protocol udp portfwdlist

Configure the UDP port forwarding list.

Syntax

- **default ip forward-protocol udp portfwdlist <1-1000>**
- **default ip forward-protocol udp portfwdlist <1-1000> <1-65535> {A.B.C.D}**
- **ip forward-protocol udp portfwdlist <1-1000>**
- **ip forward-protocol udp portfwdlist <1-1000> <1-65535> {A.B.C.D}**
- **ip forward-protocol udp portfwdlist <1-1000> name WORD<0-15>**
- **no ip forward-protocol udp portfwdlist <1-1000> <1-65535> {A.B.C.D}**
- **no ip forward-protocol udp portfwdlist <1-1000>**

Command Parameters

{A.B.C.D}

A.B.C.D is an IP address in a.b.c.d format.

<1-1000>

Creates a UDP port forwarding list in the range of 1 to 1000.

name WORD<0-15>

Specifies a name for the forwarding list.

Default

None

Command Mode

Global Configuration

ip gratuitous-arp

Enable Gratuitous Address Resolution Protocol (ARP) on a global level. When Gratuitous ARP is enabled, the switch allows all Gratuitous ARP requests. If you disable Gratuitous ARP, the switch only allows Gratuitous ARP packets associated with Routed Split Multi-Link Trunking (RSMLT) or Virtual Router Redundancy Protocol (VRRP), and the switch discards all other Gratuitous ARP request packets.

Syntax

- **default ip gratuitous-arp**
- **ip gratuitous-arp**

- **no ip gratuitous-arp**

Default

The default is enabled.

Command Mode

Global Configuration

ip icmp

Enable Fragmented ICMP packet filtering, redirect and unreachable messages.

Syntax

- **default ip icmp**
- **default ip icmp unreachable**
- **default ip icmp drop-fragments**
- **ip icmp unreachable**
- **ip icmp drop-fragments**
- **no ip icmp**
- **no ip icmp unreachable**
- **no ip icmp drop-fragments**

Command Parameters

drop-fragments

Enables IPv4 Fragmented ICMP packet filtering. The default is disabled.

unreachable

Enables the switch to send Internet Control Message Protocol (ICMP) unreachable messages. When enabled, generates Internet Control Message Protocol (ICMP) network unreachable messages if the destination network is not reachable from this router. These messages help determine if the routing switch is reachable over the network. The default is disabled.

Default

The default is disabled.

Command Mode

Global Configuration

ip icmp echo-broadcast-request (globally)

Enables or disables the processing of IPv4 ICMP messages sent to a broadcast address globally.

Syntax

- **default ip icmp echo-broadcast-request**
- **ip icmp echo-broadcast-request**
- **no ip icmp echo-broadcast-request**

Command Parameters

echo broadcast-request

Enables or disables the processing of IPv4 ICMP messages sent to a broadcast address globally. The default value is enabled.

Default

The default is enabled.

Command Mode

Global Configuration

ip igmp (globally)

Configure the Internet Group Management Protocol (IGMP) commands to establish and manage the multicast groups.

Syntax

- **default ip igmp ssm-map {A.B.C.D} {A.B.C.D}**
- **default ip igmp ssm-map {A.B.C.D} {A.B.C.D} [enable]**
- **default ip igmp stream-timeout**
- **ip igmp generate-log**
- **ip igmp generate-trap**
- **ip igmp immediate-leave-mode <multiple-user|one-user>**
- **ip igmp ssm [dynamic-learning] [group-range {A.B.C.D/X}]**
- **ip igmp ssm-map {A.B.C.D} {A.B.C.D} [enable]**
- **ip igmp ssm-map all**
- **ip igmp stream-timeout <10-432000>**

- **no ip igmp ssm-map {A.B.C.D} {A.B.C.D}**
- **no ip igmp ssm-map {A.B.C.D} {A.B.C.D} [enable]**

Command Parameters

generate-log

Sets the Internet Group Management Protocol (IGMP) log.

generate-trap

Sets the Internet Group Management Protocol (IGMP) trap.

immediate-leave-mode <multiple-user|one-user>

Enables immediate leave mode to users which is either a single user or multiple users.

ssm [dynamic-learning] [group-range {A.B.C.D/X}]

Enables and sets the Source Specific Multicast (SSM) features.

The parameter dynamic-learning enables SSM dynamic learning.

The parameter group-range {A.B.C.D/X} configures the range group address and mask. The SSM range parameter extends the default SSM range of 232/8 to include an IP multicast address. You can configure existing applications without having to change their group configurations. This parameter specifies an IP multicast address within the range of 224.0.0.0 and 239.255.255.255. The default is 232.0.0.0. The address mask is the IP address mask of the multicast group. The default is 255.0.0.0.

ssm-map {A.B.C.D} {A.B.C.D} [enable]

Enables the Source Specific Multicast (SSM) map table for a specific entry or creates a static entry for a specific group.

The parameter {A.B.C.D} {A.B.C.D} creates a static SSM channel table entry by specifying the group and source IP addresses. The first IP address is an IP multicast address within the SSM range. The second IP address is the source IP address and it it is an IP host address that sends traffic to the group. The default for {A.B.C.D}{A.B.C.D} enable is enable for each entry. The default is enable for each entry.

ssm-map all

Enables the Source Specific Multicast (SSM) map table for all static entries.

ssm-map {A.B.C.D} {A.B.C.D} [enable]

Enables the Source Specific Multicast (SSM) map table for a specific entry or creates a static entry for a specific group.

The parameter {A.B.C.D} {A.B.C.D} creates a static SSM channel table entry by specifying the group and source IP addresses. The first IP address is an IP multicast address within the SSM range. The second IP address is the source IP address and it it is an IP host address that sends traffic to the group. The default for {A.B.C.D}{A.B.C.D} enable is enable for each entry. The default is enable for each entry.

stream-timeout <10-432000>

Specifies the activity timeout for IGMP snooping streams in seconds. The default is 300 seconds.

Default

None.

Command Mode

Global Configuration

Usage Guidelines

Before you disable or delete an ssm-map, always send IGMPv1 or IGMPv2 leave messages from hosts that operate in IGMPv1 or IGMPv2. If you do not perform this action, receiving and processing reports in SSM range on an IGMP interface enabled with IGMPv1 or IGMPv2 can lead to unexpected behavior.

ip igmp generate-log

Set igmp log.

Syntax

- **ip igmp generate-log**

Default

None

Command Mode

Global Configuration

ip ipfix aging-interval

Specifies (in seconds) the flow record aging interval.

Syntax

- **default ip ipfix aging-interval**
- **ip ipfix aging-interval <1-60>**
- **ip ipfix aging-interval <100ms | 1.6s | 6.4s | 25.6s | 1m42.4s | 6m49.6s | 27m18.4s | 1h49m13.6s | 7h16m54.5s | 1d5h7m37.6s>**

- **ip ipfix aging-interval <100ms | 1s | 10s | 60s | 10m | 30m | 1h |10h |1d>**
- **no ip ipfix aging-interval**

Command Parameters

<100ms | 1.6s | 6.4s | 25.6s | 1m42.4s | 6m49.6s | 27m18.4s | 1h49m13.6s | 7h16m54.5s | 1d5h7m37.6s>

Specifies (in seconds, minutes, hours, or days) the flow record aging interval. The aging interval determines how long a traffic flow that is no longer being received is retained as a flow.

Note
Exception: only applies to 7830 Series.

<100ms | 1s | 10s | 60s | 10m | 30m | 1h |10h |1d>

Specifies (in seconds, minutes, hours, or days) the flow record aging interval. The aging interval determines how long a traffic flow that is no longer being received is retained as a flow.

Note
Exception: does not apply to 7830 Series, 7520 Series, and 7720 Series .

Default

The default is 1 minute 42.4 seconds for 7830 Series.

The default is 40 seconds for 7520 Series and 7720 Series.

The default is 10 seconds for other supported Universal hardware switches.

Command Mode

Global Configuration

ip ipfix collector

Configure a collector for Internet Protocol Flow Information eXport (IPFIX).

Syntax

- **ip ipfix collector <1-1> {A.B.C.D} exporter-ip {A.B.C.D} [dest-port <1-65535>] [src-port <1-65535>] [export-interval <1-120>] [initial-burst <1-10>]**

Command Parameters

{A.B.C.D}

Specifies the IP address of the collector.

<1–1>

Specifies the IPFIX collector ID.

exporter-ip {A.B.C.D}

Specifies the IP address of the exporter.

dest-port <1-65535>

Specifies the destination port receiving flow information.

src-port <1-65535>

Specifies the source port sending flow information.

export-interval

Specifies, in seconds, the frequency of template packet exports to the collector. The default value is 60 seconds.

initial-burst

Specifies the number of template packets sent when the collector becomes reachable. The default value is 5.

Default

None

Command Mode

Global Configuration

ip ipfix enable

Enable IPFIX globally.

Syntax

- **default ip ipfix enable**
- **ip ipfix enable**
- **no ip ipfix enable**

Default

The default value is disable.

Command Mode

Global Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

If you enable IPFIX globally, the switch learns flows on both UNI ports and NNIs automatically, because IPFIX is enabled on those interfaces by default. You must explicitly disable IPFIX on those interfaces to stop flow learning. If you disable IPFIX globally, no flow learning occurs, regardless of the UNI port or NNI configuration.

ip ipfix nni enable

Enables IPFIX on all NNI.

Syntax

- **default ip ipfix nni enable**
- **ip ipfix nni enable**
- **no ip ipfix nni enable**

Default

The default is enabled.

Command Mode

Global Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

If you enable IPFIX globally, the switch learns flows on both UNI ports and NNIs automatically, because IPFIX is enabled on those interfaces by default. You must explicitly disable IPFIX on those interfaces to stop flow learning. If you disable IPFIX globally, no flow learning occurs, regardless of the UNI port or NNI configuration.

ip ipfix observation-domain

Assign a unique ID to an IPFIX observation domain.

Syntax

- **default ip ipfix observation-domain**
- **ip ipfix observation-domain <0-4294967295>**
- **no ip ipfix observation-domain**

Command Parameters

<0-4294967295>

Specifies the observation domain ID. The default is 0.

Default

The default value is 0.

Command Mode

Global Configuration

ip ipfix port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} enable

Enables IPFIX on a UNI port.

Syntax

- **default ip ipfix port {slot/port[/sub-port][-slot/port[/sub-port]] [,...][slot/all][all]} enable**
- **ip ipfix port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/ all][all]} enable**
- **no ip ipfix port {slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]} enable**

Command Parameter

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

Default

The default is enabled

Command Mode

Global Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

If you enable IPFIX globally, the switch learns flows on both UNI ports and NNIs automatically, because IPFIX is enabled on those interfaces by default. You must explicitly disable IPFIX on those interfaces to stop flow learning. If you disable IPFIX globally, no flow learning occurs, regardless of the UNI port or NNI configuration.

ip irdp

Enable Router Discovery globally so that the switch supports Router Discovery.

Syntax

- **default ip irdp**
- **default ip irdp enable**
- **ip irdp**
- **ip irdp enable**
- **no ip irdp**
- **no ip irdp enable**

Command Parameters

enable

Enables the router discovery protocol on the switch.

Default

None

Command Mode

Global Configuration

ip isid-list

Create an I-SID list to use with IS-IS accept policies.

Syntax

- **ip isid-list WORD<1-32> <0-16777215>**
- **ip isid-list WORD<1-32> list WORD<1-1024>**
- **no ip isid-list WORD<1-32> <0-16777215>**
- **no ip isid-list WORD<1-32> list WORD<1-1024>**

Command Parameters

<1-16777215>

Specifies an I-SID value.

list WORD<1-1024>

Specifies the of I-SID values.

WORD<1-32>

Specifies a name for the I-SID list.

Default

None

Command Mode

Global Configuration

Usage Guidelines

When creating an I-SID list, you can add I-SID entries until the maximum limit for supported Layer 3 I-SIDs is reached. The system truncates any additional I-SID entries. The maximum limit includes the I-SIDs for locally configured Layer 3 VSNs and the I-SIDs specified for IS-IS accept policy filters.

Use the command **`show ip isid-list vrf WORD<1-16>`** to view the list of truncated I-SIDs.

When deleting an I-SID list, ensure that the I-SID list is not associated with an IS-IS accept policy. Otherwise the deletion fails. An I-SID list associated with an accept policy cannot be deleted because it must contain at least one constituent I-SID.

ip max-routes-trap enable

Enable the switch to send a trap when the maximum number of routes is exceeded.

Syntax

- **`default ip max-routes-trap enable`**
- **`ip max-routes-trap enable`**
- **`no ip max-routes-trap enable`**

Default

The default is disabled.

Command Mode

Global Configuration

ip more-specific-non-local-route (globally)

Enable the more-specific-non-local-route feature. If enabled, the switch can enter a more specific nonlocal route into the routing table.

Syntax

- **default ip more-specific-non-local-route**
- **default ip more-specific-non-local-route enable**
- **ip more-specific-non-local-route**
- **ip more-specific-non-local-route enable**
- **no ip more-specific-non-local-route**
- **no ip more-specific-non-local-route enable**

Command Parameters

enable

Enable more-specific-non-local-route

Default

The default is disabled.

Command Mode

Global Configuration

ip mroute resource-usage (globally)

Configure the resource usage counters to query the number of ingress and egress IP multicast streams traversing your switch and enable traps and log messages on the console.

Syntax

- **default ip mroute resource-usage egress-threshold ingress-threshold**
- **default ip mroute resource-usage ingress-threshold**
- **ip mroute resource-usage egress-threshold <0-32767> [ingress-threshold <0-32767>]**
- **ip mroute resource-usage ingress-threshold <0-32767>**
- **ip mroute resource-usage log-msg [trap-msg]**

Command Parameters

egress-threshold <0-32767>

Configures the egress record threshold (S,G). A notification message is sent if this value is exceeded.

The integer is a value between 0-32767. To set this option to the default value, use the default operator with the command. The default is 0.

ingress-threshold <0-32767>

Configures the ingress record threshold (peps). A notification message is sent if this value is exceeded.

the integer is a value between 0-32767. To set this option to the default value, use the default operator with the command. The default is 0.

log-msg

Configures the notification method for sending only a log message after the threshold level is exceeded. Use the no operator to later remove this configuration. To set this option to the default value, use the default operator with the command. The default is disabled.

trap-msg

Configures the notification method for sending only a trap message after the threshold level is exceeded. Use the no operator to later remove this configuration. To set this option to the default value, use the default operator with the command. The default is disabled.

Default

None

Command Mode

Global Configuration

ip mroute resource-usage egress-threshold

Configure the resource usage counters to query the number of ingress and egress IP multicast streams traversing your switch.

Syntax

- **ip mroute resource-usage egress-threshold <0-32767> ingress-threshold <0-32767>**

Command Parameters

egress-threshold <0-32767>

Configures the egress record threshold (S,G). A notification message is sent if this value is exceeded.

The integer is a value between 0-32767. To set this option to the default value, use the default operator with the command. The default is 0.

ingress-threshold <0-32767>

Configures the ingress record threshold (peps). A notification message is sent if this value is exceeded.

The integer is a value between 0-32767. To set this option to the default value, use the default operator with the command. The default is 0.

Default

None

Command Mode

Global Configuration

ip mroute resource-usage log-msg trap-msg

Enable traps and log messages on the console.

Syntax

- **ip mroute resource-usage log-msg trap-msg**

Command Parameters

log-msg

Configures the notification method for sending only a log message after the threshold level is exceeded. Use the no operator to later remove this configuration. To set this option to the default value, use the default operator with the command. The default is disabled.

trap-msg

Configures the notification method for sending only a trap message after the threshold level is exceeded. Use the no operator to later remove this configuration. To set this option to the default value, use the default operator with the command. The default is disabled.

Default

None

Command Mode

Global Configuration

ip mroute static-source-group

Configure static source-group entries in the Protocol Independent Multicast (PIM) multicast routing table.

Syntax

- **ip mroute static-source-group <A.B.C.D> <A.B.C.D/X>**
- **no ip mroute static-source-group <A.B.C.D> <A.B.C.D/X>**

Command Parameters

<A.B.C.D>

Specifies the group IP address.

A.B.C.D/X

Specifies the multicast source IP address and subnet mask for the static source group entry. You cannot create duplicate groups. How you configure the source address depends on the protocol and mode you use. Use the no operator to remove this configuration.

Default

None

Command Mode

Global Configuration

ip mroute stats enable

Enable the collection of multicast routing process statistics.

Syntax

- **default ip mroute stats enable**
- **ip mroute stats enable**
- **no ip mroute stats enable**

Default

The default is disabled.

Command Mode

Global Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

ip mroute stream-limit (globally)

Limit the number of multicast streams to protect a Central Processor Unit (CPU) from multicast data packet bursts generated by malicious applications.

Syntax

- **default ip mroute stream-limit**
- **ip mroute stream-limit**
- **no ip mroute stream-limit**

Default

None

Command Mode

Global Configuration

ip msdp apply redistribute (globally)

Apply MSDP redistribution filters.

Syntax

- **default ip msdp apply redistribute**
- **ip msdp apply redistribute**
- **no ip msdp apply redistribute**

Default

None

Command Mode

Global Configuration

ip msdp connect—retry (globally)

Configure the connect-retry period to specify the amount of time, in seconds, between connection attempts for peering sessions.

Syntax

- **default ip msdp connect—retry {A.B.C.D} <1-65535>**
- **ip msdp connect—retry {A.B.C.D} <1-65535>**
- **no ip msdp connect—retry {A.B.C.D} <1-65535>**

Command Parameters

{A.B.C.D}

Specifies the MSDP peer IP address.

<1-65535>

Specifies the connect-retry interval in seconds. The default is 30 seconds.

Default

The default is 30 seconds.

Command Mode

Global Configuration

ip msdp enable (globally)

Enable Multicast Source Discovery Protocol (MSDP).

Syntax

- **default ip msdp enable**
- **ip msdp enable**
- **no ip msdp enable**

Default

The default is disabled.

Command Mode

Global Configuration

ip msdp keepalive (globally)

Configure keepalive messages to adjust the interval in seconds at which an MSDP peer sends keep alive messages.

Syntax

- **default ip msdp keepalive {A.B.C.D} <0-21845> <0-65535>**
- **ip msdp keepalive {A.B.C.D} <0-21845> <0-65535>**
- **no ip msdp keepalive {A.B.C.D} <0-21845> <0-65535>**

Command Parameters

{A.B.C.D}

Specifies the MSDP peer IP address.

<0-21845>

Specifies the keep alive interval in seconds. The default is 60 seconds.

<0-65535>

Specifies the hold time interval in seconds. The default is 75 seconds. 0 seconds means the peer never expires. Values 1 and 2 are not allowed.

Default

The default is 60 seconds.

Command Mode

Global Configuration

ip msdp md5-authentication (globally)

Configure Message Digest (MD) 5 authentication to secure control messages on the TCP connection between MSDP peers.

Syntax

- **default ip msdp md5-authentication**
- **ip msdp md5-authentication**
- **ip msdp md5-authentication {A.B.C.D} [enable]**
- **no ip msdp md5-authentication {A.B.C.D} [enable]**

Command Parameters

{A.B.C.D}

Specifies the MSDP peer IP address.

enable

Enables MD5 authentication.

Default

The default is disabled.

Command Mode

Global Configuration

ip msdp mesh-group (globally)

Configure mesh groups to reduce SA flooding. A mesh group does not forward SA messages to other group members.

Syntax

- **default ip msdp mesh-group WORD<1-64> {A.B.C.D}**
- **ip msdp mesh-group WORD<1-64> {A.B.C.D}**
- **no ip msdp mesh-group WORD<1-64> {A.B.C.D}**

Command Parameters

{A.B.C.D}

Specifies the MSDP peer IP address.

WORD<1-64>

Specifies the mesh group name.

Default

None

Command Mode

Global Configuration

ip msdp originator-id (globally)

Configure the originator ID to set the Rendezvous Point (RP) address inside the Source Active (SA) message.

Syntax

- **default ip msdp originator-id {A.B.C.D}**
- **ip msdp originator-id {A.B.C.D}**
- **no ip msdp originator-id {A.B.C.D}**

Command Parameters

{A.B.C.D}

Specifies the MSDP source IP address.

Default

None

Command Mode

Global Configuration

ip msdp password peer (globally)

Configure the case sensitive password for MD5 authentication

Syntax

- **default ip msdp password peer {A.B.C.D}**
- **ip msdp password peer {A.B.C.D} WORD<1-80>**
- **no ip msdp password peer {A.B.C.D} WORD<1-80>**

Command Parameters

{A.B.C.D}

Specifies the MSDP peer IP address.

WORD<1-80>

Specifies the MD5 authentication password.

Default

None

Command Mode

Global Configuration

ip msdp redistribute (globally)

Filter SPB routes to filter which (S,G,RP) entries sent out to all MSDP peers.

Syntax

- **default ip msdp redistribute**
- **ip msdp redistribute**

- **no ip msdp redistribute**

Default

None

Command Mode

Global Configuration

ip msdp redistribute route-policy (globally)

Create the route policy name.

Syntax

- **default ip msdp redistribute route-policy WORD<1-64>**
- **ip msdp redistribute route-policy WORD<1-64>**
- **no ip msdp redistribute route-policy WORD<1-64>**

Command Parameters

WORD<1-64>

Specifies the route policy name.

Default

None

Command Mode

Global Configuration

ip msdp sa-filter in (globally)

Create the inbound filter.

Syntax

- **default ip msdp sa-filter in {A.B.C.D}**
- **default ip msdp sa-filter in {A.B.C.D} route-policy WORD<1-64>**
- **ip msdp sa-filter in {A.B.C.D}**
- **ip msdp sa-filter in {A.B.C.D} route-policy WORD<1-64>**
- **no ip msdp sa-filter in {A.B.C.D}**
- **no ip msdp sa-filter in {A.B.C.D} route-policy WORD<1-64>**

Command Parameters

{A.B.C.D}

Specifies the MSDP peer IP address.

route-policy WORD<1-64>

Specifies the route policy name for an inbound filter.

Default

None

Command Mode

Global Configuration

ip msdp sa-filter out (globally)

Create the outbound filter.

Syntax

- **default ip msdp sa-filter out {A.B.C.D}**
- **default ip msdp sa-filter out {A.B.C.D} route-policy WORD<1-64>**
- **ip msdp sa-filter out {A.B.C.D}**
- **ip msdp sa-filter out {A.B.C.D} route-policy WORD<1-64>**
- **no ip msdp sa-filter out {A.B.C.D}**
- **no ip msdp sa-filter out {A.B.C.D} route-policy WORD<1-64>**

Command Parameters

{A.B.C.D}

Specifies the MSDP peer IP address.

route-policy WORD<1-64>

Specifies the route policy name for an outbound filter.

Default

None

Command Mode

Global Configuration

ip msdp sa-limit (globally)

Specifies the maximum number of SA messages to keep in SA cache.

Syntax

- **default ip msdp sa-limit {A.B.C.D} <0-6144>**
- **ip msdp sa-limit {A.B.C.D} <0-6144>**
- **no ip msdp sa-limit {A.B.C.D} <0-6144>**

Command Parameters

{A.B.C.D}

Specifies the MSDP peer IP address.

<0-6144>

Specifies the maximum number of SA messages to keep in SA cache. The default is 6144 messages.

Default

The default is 6144.

Command Mode

Global Configuration

ip msdp ttl-threshold (globally)

Configure the time-to-live (TTL) threshold to limit which multicast data packets the router encapsulated in SA Messaged forwarded to an MSDP peer.

Syntax

- **default ip msdp ttl-threshold {A.B.C.D} <1-255>**
- **ip msdp ttl-threshold {A.B.C.D} <1-255>**
- **no ip msdp ttl-threshold {A.B.C.D} <1-255>**

Command Parameters

{A.B.C.D}

Specifies the MSDP peer IP address.

<1-255>

Specifies the Time-To-Live value. The default is 1.

Default

The default is 1.

Command Mode

Global Configuration

ip name-server

Add or delete IP addresses for DNS servers.

Syntax

- **default ip name-server primary**
- **default ip name-server secondary**
- **default ip name-server tertiary**
- **ip name-server primary WORD<0-46>**
- **ip name-server secondary WORD<0-46>**
- **ip name-server tertiary WORD<0-46>**
- **no ip name-server primary**
- **no ip name-server secondary**
- **no ip name-server tertiary**
- **no ip name-server primary-dynamic**
- **no ip name-server secondary-dynamic**
- **no ip name-server tertiary-dynamic**

Command Parameters

<primary|secondary|tertiary|primary-dynamic|secondary-dynamic|tertiary-dynamic>WORD<0-46>

Configures the primary, secondary, or tertiary DNS server address. Enter the IP address in a.b.c.d format for IPv4. You can specify the IP address for only one server at a time; you cannot specify all three servers in one command.

Default

None

Command Mode

Global Configuration

Usage Guidelines

The dynamic DNS parameters only apply to the **no ip name-server** command.

ip pim (globally)

Configure PIM to create a PIM instance, and enable or disable PIM globally on the switch and change default global parameters.

Syntax

- **default ip pim**
- **default ip pim bootstrap-period**
- **default ip pim disc-data-timeout**
- **default ip pim enable**
- **default ip pim fast-joinprune**
- **default ip pim fwd-cache-timeout**
- **default ip pim join-prune-interval**
- **default ip pim register-suppression-timeout**
- **default ip pim rp-c-adv-timeout**
- **default ip pim unicast-route-change-timeout**
- **ip pim**
- **ip pim bootstrap-period <5-32757>**
- **ip pim disc-data-timeout <5-65535>**
- **ip pim enable**
- **ip pim fast-joinprune**
- **ip pim fwd-cache-timeout <10-86400>**
- **ip pim join-prune-interval <1-18724>**
- **ip pim register-suppression-timeout <6-65535>**
- **ip pim rp-c-adv-timeout <5-26214>**
- **ip pim unicast-route-change-timeout <2-65535>**
- **no ip pim**
- **no ip pim enable**
- **no ip pim fast-joinprune**
- **no ip pim spt-infinite-threshold**

Command Parameters

bootstrap-period <5-32757>

Specify the interval (in seconds) that the elected bootstrap router (BSR) waits between originating bootstrap messages.

disc-data-timeout <5-65535>

Specify how long (in seconds) to discard data until the join is received from the rendezvous point (RP). An IP multicast discard record is created after a register packet is sent, until the timer expires or a join is received.

enable

Activates PIM on the switch globally.

fast-joinprune

Enable the fast join prune interval.

fwd-cache-timeout <10-86400>

Specify the forward cache timeout value.

join-prune-interval <1-18724>

Specify how long to wait (in seconds) before the PIM router sends out the next join/prune message to its upstream neighbors.

register-suppression-timeout <6-65535>

Specify how long (in seconds) the designated router (DR) suppresses sending registers to the RP. The timer starts after the DR receives a register-stop message from the RP.

rp-c-adv-timeout <5-26214>

Specify how often (in seconds) a router configured as a candidate RP (C-RP) sends C-RP advertisement messages. After this timer expires, the C-RP router sends an advertisement message to the elected BSR.

unicast-route-change-timeout <2-65535>

Specify how often (in seconds) the switch polls the routing table manager (RTM) for unicast routing information updates for PIM. Lowering this value increases how often the switch polls the RTM. This can affect the performance of the switch, especially when a high volume of traffic flows through the switch.

Default

The default is disabled.

Command Mode

Global Configuration

ip pim mode

Configure the mode of this interface globally. After you change from one mode to another, the system displays an information message to remind you that traffic does not stop immediately.

Syntax

- **default ip pim mode**

- **ip pim mode sparse**
- **ip pim mode ssm**

Command Parameters

<ssm|sparse>

Specifies the mode. Configures Source Specific Multicast (SSM) to optimize PIM-SM by simplifying the many-to-many model (servers-to-receivers).

Default

The default is sparse.

Command Mode

Global Configuration

ip pim rp-candidate group

Configure a candidate rendezvous point (C-RP) to serve as backup to the RP router.

Syntax

- **default ip pim rp-candidate group <A.B.C.D> <A.B.C.D>**
- **ip pim rp-candidate group <A.B.C.D> <A.B.C.D> rp <A.B.C.D>**
- **no ip pim rp-candidate group <A.B.C.D> <A.B.C.D>**

Command Parameters

{A.B.C.D} {A.B.C.D}

Specifies the IP address and group mask of the multicast group. When combined, they identify the prefix that the local router uses to advertise itself as a C-RP router.

rp {A.B.C.D}

Specifies the IP address of the C-RP router. This address must be one of the local PIM-SM enabled interfaces.

Default

None

Command Mode

Global Configuration

ip pim spt-infinite-threshold

Enable PIM Infinite Threshold Policy for IPv4.

Syntax

- **default ip pim spt-infinite-threshold**
- **ip pim spt-infinite-threshold**
- **no ip pim spt-infinite-threshold**

Default

The default is disabled.

Command Mode

Global Configuration

ip pim static-rp

Adds a static rendezvous point (RP) entry and activates static RP.

Syntax

- **default ip pim static-rp**
- **ip pim static-rp <A.B.C.D/X> <A.B.C.D>**
- **no ip pim static-rp**

Command Parameters

<A.B.C.D/X>

Specifies the IP address and address mask of the multicast group. When combined, the IP address and address mask identify the range of the multicast addresses that the RP handles.

<A.B.C.D>

Specifies the IP address of the static RP.

Default

The default is disabled.

Command Mode

Global Configuration

ip pim virtual-neighbor

Configure a virtual neighbor when the next hop for a static route cannot run PIM.

Syntax

- **ip pim virtual-neighbor <A.B.C.D> <A.B.C.D>**
- **no ip pim virtual-neighbor <A.B.C.D> <A.B.C.D>**

Command Parameters

<A.B.C.D>

The first IP address indicates the IP address of the selected interface.

<A.B.C.D>

The second IP address indicates the IP address of the neighbor.

Default

None

Command Mode

Global Configuration

ip prefix-list

Allows or denies specific route updates. A prefix list policy specifies route prefixes to match. When there is a match, the route is used. Configure a prefix list and apply the list to an IP route policy.

Syntax

- **ip prefix-list WORD<1-64> {A.B.C.D/X} [id <1-2147483647>] [ge <0-32>] [le <0-32>]**
- **ip prefix-list WORD<1-64> name WORD<1-64>**
- **no ip prefix-list WORD<1-64>**
- **no ip prefix-list WORD<1-64> {A.B.C.D/X}**

Command Parameters

<A.B.C.D/X>

Specifies a prefix entry to add to the prefix list. A.B.C.D/X is the IP address and mask. Use the no operator to remove a prefix entry from the prefix list.

ge<0-32>

Specifies the minimum length to match. Lower bound and higher bound mask lengths together can define a range of networks.

id<1-2147483647>

Specifies the prefix list ID.

le<0-32>

Specifies the maximum length to match. Lower bound and higher bound mask lengths together can define a range of networks.

name WORD<1-64>

Specifies a new name for the prefix list.

Default

None

Command Mode

Global Configuration

ip route (globally)

You can configure routing switches with a static default route, or they can learn it through a dynamic routing protocol. Use this command to create static or discard routes for data traffic in the GRT.

Syntax

- **default ip route <A.B.C.D A.B.C.D | A.B.C.D/X> {A.B.C.D} [dynamic] [enable] [local-next-hop enable] [name] [preference]**
- **ip route <A.B.C.D A.B.C.D | A.B.C.D/X> {discard | {A.B.C.D}} enable [next-hope-vrf WORD<1-16>]**
- **ip route <A.B.C.D A.B.C.D | A.B.C.D/X> {A.B.C.D} local-next-hop enable**
- **ip route <A.B.C.D A.B.C.D | A.B.C.D/X> {discard | {A.B.C.D}} name WORD<0-46>**
- **ip route <A.B.C.D A.B.C.D | A.B.C.D/X> {discard | {A.B.C.D}} preference <1-255> [next-hop-vrf WORD<1-16>]**
- **ip route <A.B.C.D A.B.C.D | A.B.C.D/X> {discard | {A.B.C.D}} weight <1-65535> [local-next-hop enable] [name <0-64>] [next-hop-vrf WORD<1-16>] [preference <1-255>]**
- **no ip route <A.B.C.D A.B.C.D | A.B.C.D/X> {discard | {A.B.C.D}} [dynamic] [enable] [local-next-hop enable] [name] [next-hop-vrf WORD<1-16>] [preference]**

Command Parameters

<A.B.C.D A.B.C.D | A.B.C.D/X>

Specifies the IP address and mask for the route destination in one of the following formats:

- A.B.C.D A.B.C.D
- A.B.C.D/X

The default route specifies a route to all networks for which there are no explicit routes in the Forwarding Information Base or the routing table. The default route has a prefix length of zero (RFC 1812).

{A.B.C.D}

Specifies the IP address of the next-hop router (the next router at which packets must arrive on this route).

For a discard static route, configure the next hop address as ffff.ffff.ffff.ffff.ffff.ffff.ffff.ffff. This value indicates the traffic to this route is discarded.

discard

Specifies the route as a discard static route.

enable

Adds a static or default route to the router or VRF.

local-next-hop enable

Enables the local next hop for this static route.

name WORD<1-64>

Specifies the static route name.

next-hop-vrf WORD<1-16>

Specifies the next-hop VRF instance by name.

preference <1-255>

Specifies the route preference.

weight <1-65535>

Specifies the static route cost.

Default

None

Command Mode

Global Configuration

Usage Guidelines

Static routes for the management OOB, if supported, and management VLAN (non-routing mode) must use the Segmented Management Instance. The management CLIP can use the Segmented Management Instance or routes in the associated VRF routing table manager (RTM). The management VLAN (routing mode) uses the Fabric Engine routing table or routes in the associated VRF.

ip route bfd

Configure an IPv4 static route for Bidirectional Forwarding Detection (BFD).

Syntax

- **default ip route bfd {A.B.C.D}**
- **ip route bfd {A.B.C.D}**
- **no ip route bfd {A.B.C.D}**

Command Parameters

{A.B.C.D}

Specifies the BFD static route IPv4 address.

Command Mode

Global Configuration

ip route preference protocol ebgp

Configure the global route preference.

Syntax

- **default ip route preference protocol ebgp**
- **ip route preference protocol ebgp <0-255>**

Command Parameters

<0-255>

Configures the preference value for the specified protocol. If two protocols have the same configured value, the default value is used.

Default

The default is 45.

Command Mode

Global Configuration

ip route preference protocol ibgp

Configure the global route preference.

Syntax

- **default ip route preference protocol ibgp**
- **ip route preference protocol ibgp <0-255>**

Command Parameters

<0-255>

Configures the preference value for the specified protocol. If two protocols have the same configured value, the default value is used.

Default

The default is 175.

Command Mode

Global Configuration

ip route preference protocol isis-external

Configure the global route preference for an external IP route.

Syntax

- **default ip route preference protocol isis-external**
- **ip route preference protocol isis-external <0-255>**

Command Parameters

<0-255>

Specifies the preference value for the specified protocol. Preference value 0 is reserved for Local routes.

If two protocols have the same configured value, the default value is used.

Default

The default is 130.

Command Mode

Global Configuration

ip route preference protocol isis-internal

Configure the global route preference for an internal IP route.

Syntax

- **default ip route preference protocol isis-internal**
- **ip route preference protocol isis-internal <0-255>**

Command Parameters

<0-255>

Specifies the preference value for the specified protocol. Preference value 0 is reserved for Local routes.

If two protocols have the same configured value, the default value is used.

Default

The default is 7.

Command Mode

Global Configuration

ip route preference protocol ospf-extern1

Configure the global route preference.

Syntax

- **default ip route preference protocol ospf-extern1**
- **ip route preference protocol ospf-extern1 <0-255>**

Command Parameters

<0-255>

Configures the preference value for the specified protocol. If two protocols have the same configured value, the default value is used.

Default

The default is 120.

Command Mode

Global Configuration

ip route preference protocol ospf-extern2

Configure the global route preference.

Syntax

- **default ip route preference protocol ospf-extern2**
- **ip route preference protocol ospf-extern2 <0-255>**

Command Parameters

<0-255>

Configures the preference value for the specified protocol. If two protocols have the same configured value, the default value is used.

Default

The default is 125.

Command Mode

Global Configuration

ip route preference protocol ospf-inter

Configure the global route preference.

Syntax

- **default ip route preference protocol ospf-inter**
- **ip route preference protocol ospf-inter <0-255>**

Command Parameters

<0-255>

Configures the preference value for the specified protocol. If two protocols have the same configured value, the default value is used.

Default

The default is 25.

Command Mode

Global Configuration

ip route preference protocol ospf-intra

Configure the global route preference.

Syntax

- **default ip route preference protocol ospf-intra**
- **ip route preference protocol ospf-intra <0-255>**

Command Parameters

<0-255>

Configures the preference value for the specified protocol. If two protocols have the same configured value, the default value is used.

Default

The default is 20.

Command Mode

Global Configuration

ip route preference protocol rip

Configure the global route preference.

Syntax

- **default ip route preference protocol rip**
- **ip route preference protocol rip <0-255>**

Command Parameters

<0-255>

Configures the preference value for the specified protocol. If two protocols have the same configured value, the default value is used.

Default

The default is 100.

Command Mode

Global Configuration

ip route preference protocol spbm-level1

Configure the global route preference.

Syntax

- **default ip route preference protocol spbm-level1**
- **ip route preference protocol spbm-level1 <0-255>**

Command Parameters

<0-255>

Configures the preference value for the specified protocol. If two protocols have the same configured value, the default value is used.

Default

The default is 7.

Command Mode

Global Configuration

ip route preference protocol static

Configure the global route preference.

Syntax

- **default ip route preference protocol static**
- **ip route preference protocol static <0-255>**

Command Parameters

<0-255>

Configures the preference value for the specified protocol. If two protocols have the same configured value, the default value is used.

Default

The default is 5.

Command Mode

Global Configuration

ip routing (globally)

Enable IP forwarding (routing) on a global level so that the router supports routing. You can use the IP address of any router interface for IP-based network management.

Syntax

- **default ip routing**
- **ip routing**
- **no ip routing**

Default

None

Command Mode

Global Configuration

Usage Guidelines

You cannot configure this option on a DvR Leaf node.

ip rsmlt edge-support

Configure Routed Split MultiLink trunking (RSMLT)-edge to store the RSMLT peer MAC/IP address-pair in its local config file and restore the configuration if the peer does not restore after a simultaneous reboot of both RSMLT-peer switches. The configuration applies to both IPv4.

Syntax

- **default ip rsmlt edge-support**
- **ip rsmlt edge-support**
- **no ip rsmlt edge-support**
- **no ip rsmlt peer-address <1-4059>**

Command Parameters

edge-support

Enables RSMLT-edge support.

Default

The default is disabled.

Command Mode

Global Configuration

ip source-route

Enables IPv4 source routing globally.

Syntax

- **default ip source-route**
- **ip source-route**
- **no ip source-route**

Default

Disabled

Command Mode

Global Configuration

ip spb-multicast-policy enable (Globally)

Enables the IP SPB Multicast Policy globally.

Syntax

- **default ip spb-multicast-policy enable**
- **ip spb-multicast-policy enable**
- **no ip spb-multicast-policy enable**

Default

None

Command Mode

Global Configuration

ip spb-multicast-policy route-map (Globally)

Configures the route-map of the IP SPB Multicast Policy .

Syntax

- **default ip spb-multicast-policy route-map**
- **ip spb-multicast-policy route-map WORD<0-64>**

Command Parameters

WORD<0-64>

Specifies the route of the policy name.

Default

None

Command Mode

Global Configuration

ip spb-pim-gw foreign-source (globally)

Configures a static foreign source.

Syntax

- **default ip spb-pim-gw foreign-source {A.B.C.D} group {A.B.C.D}**
- **ip spb-pim-gw foreign-source {A.B.C.D} group {A.B.C.D}**
- **no ip spb-pim-gw foreign-source {A.B.C.D} group {A.B.C.D}**

Command Parameters

{A.B.C.D}

Specifies the multicast foreign source IP address.

group {A.B.C.D}

Specifies the group IP address.

Default

None

Command Mode

Global Configuration

ip supernet (globally)

Enable or disable supernetting. If supernetting is globally enabled, the switch can learn routes with a route mask of less then eight bits. Routes with a mask length less than eight bits cannot have ECMP paths, even if the ECMP feature is globally enabled.

Syntax

- **default ip supernet**
- **ip supernet**
- **no ip supernet**

Default

The default is disabled.

Command Mode

Global Configuration

ip tcp adjust-mss

Adjusts the TCP maximum segment size (MSS) to improve the throughput for the TCP session over a Fabric Extend (FE) adjacency.

Syntax

- **default ip tcp adjust-mss**
- **ip tcp adjust-mss [<500-1900>] [enable]**
- **no ip tcp adjust-mss enable**

Command Parameters

enable

Enables the functionality.

<500-1900>

Specifies the Maximum Transmission Unit (MTU) size for each packet.

Default

The default is disabled. The default value, when enabled, is 1300.

Command Mode

Global Configuration

ip ttl (globally)

Configure the IP routing protocol stack to specify which routing features the switch can use.

Syntax

- **default ip ttl**
- **ip ttl <1-255>**
- **no ip ttl**

Command Parameters

ttl<1-255>

Configures the default time-to-live (TTL) value for a routed packet. The TTL is the maximum number of seconds before a packet is discarded. The default value of 255 is used whenever a time is not supplied in the datagram header.

Default

The default value is 255.

Command Mode

Global Configuration

ip vrf

Creates a VRF instance.

Syntax

- **default ip vrf WORD<1-16> max-routes**
- **default ip vrf WORD<1-16> max-routes-trap enable**
- **default ip vrf WORD<1-16> vrf-trap enable**
- **ip vrf WORD<1-16>**
- **ip vrf WORD<1-16> ipv6-max-routes <max-routes>**
- **ip vrf WORD<1-16> ipv6-max-routes-trap enable**
- **ip vrf WORD<1-16> max-routes <max-routes>**
- **ip vrf WORD<1-16> max-routes-trap enable**
- **ip vrf WORD<1-16> name WORD<0-16>**
- **ip vrf WORD<1-16> vrfid <1-511>**
- **ip vrf WORD<1-16> vrf-trap enable**

- **no ip vrf WORD<1-16>**
- **no ip vrf WORD<1-16> ipv6-max-routes-trap enable**
- **no ip vrf WORD<1-16> max-routes-trap enable**
- **no ip vrf WORD<1-16> vrf-trap enable**

Command Parameters

ipv6-max-routes <0-7744>

Specifies the maximum number of IPv6 routes for the VRF. Depending on the hardware platform, the parameter range and default value can vary. Use the CLI Help to see the available range for the switch. For route scaling information, see *Fabric Engine Release Notes*.

ipv6-max-routes-trap enable

Enables SNMP trap generation based on the configured number of maximum IPv6 routes.

max-routes *<max-routes>*

Specifies the maximum number of IPv4 routes for the VRF. Depending on the hardware platform, the parameter range and default value can vary. Use the CLI Help to see the available range for the switch. For route scaling information, see *Fabric Engine Release Notes*.

max-routes-trap enable

Enables the sending of traps after the maximum number of routes is reached. The default is enabled.

name WORD<1-16>

Renames for the VRF instance.

vrfid <1-511>

Specifies a VRF ID.

vrf-trap enable

Enables the device to send VRF-related traps. The default is enabled.

WORD<1-16>

Specifies the name for the VRF.

The 5320 Series display the following warning and prompt after you enter this command: `Warning: creating a new VRF will activate Unicast Routing on it and this will de-activate Unicast routing on existing VRF GlobalRouter. Are you sure about creating new VRF? (y/n) ?`

Default

None

Command Mode

Global Configuration

Usage Guidelines



Note

The supported VRF ID range on the 5320-16P-2MXT-2X differs from other Fabric Engine platforms. 5320-16P-2MXT-2X supports a range of 1-14. To verify the supported range on a specific model, use the CLI contextual help (?).

ipsec policy

Create and configure an Internet Protocol Security (IPsec) policy.

Syntax

- **default ipsec policy WORD<1-32>**
- **ipsec policy WORD<1-32>**
- **ipsec policy WORD<1-32> action drop**
- **ipsec policy WORD<1-32> action permit**
- **ipsec policy WORD<1-32> laddr WORD<1-32>**
- **ipsec policy WORD<1-32> protocol icmp**
- **ipsec policy WORD<1-32> protocol icmpv6**
- **ipsec policy WORD<1-32> protocol ospfv3**
- **ipsec policy WORD<1-32> protocol tcp sport <1-65535> dport <1-65535>**
- **ipsec policy WORD<1-32> protocol tcp sport <1-65535> dport any**
- **ipsec policy WORD<1-32> protocol udp**
- **ipsec policy WORD<1-32> protocol udp sport <1-65535> dport <1-65535>**
- **ipsec policy WORD<1-32> protocol udp sport <1-65535> dport any**
- **ipsec policy WORD<1-32> raddr WORD<1-32>**
- **no ipsec policy WORD<1-32>**

Command Parameters

action <drop|permit>

Specifies the action the policy takes. The default is permit.

dport<1-65535|<any>

Specifies the destination port for TCP and UDP. You can specify any port as the destination port. The default is any.

laddr WORD<1-32>

Specifies the local address. This field is optional. laddr is an optional parameter that allows you to have multiple local addresses for each remote address. If you do not configure this parameter, then the IPv6 address 0::0 is the default, which configures this parameter to any address.

protocol <icmp|icmpv6|ospfv3|tcp|udp>

Specifies the protocol. The default is TCP.

raddr WORD<1-32>

Specifies the remote address. Use the address 0::0 to configure raddr to any, which allows the parameter to act as a wildcard entry with any destination acceptable.

sport <1-65535>

Specifies the source port for TCP and UDP.

WORD<1–32>

Specifies the policy ID

Default

The default is disabled.

Command Mode

Global Configuration

ipsec policy admin enable

Enable an Internet Protocol Security (IPsec) policy.

Syntax

- **ipsec policy WORD<1-32> admin enable**
- **no ipsec policy WORD<1-32> admin enable**

Command Parameters

WORD<1-32>

Specifies the IPsec policy name.

Default

The default is disabled.

Command Mode

Global Configuration

ipsec policy security-association

Link an Internet Protocol Security (IPsec) policy to an IPsec security association.

Syntax

- **default ipsec policy WORD<1-32> security-association WORD<1-32>**
- **ipsec policy WORD<1-32> security-association WORD<1-32>**
- **no ipsec policy WORD<1-32> security-association WORD<1-32>**

Default

None

Command Mode

Global Configuration

ipsec security-association

Create and configure an Internet Protocol Security (IPsec) security association.

Syntax

- **default ipsec security-association WORD<1-32>**
- **ipsec security-association WORD<1-32>**
- **ipsec security-association WORD<1-32> auth-algo AES-XCBC-MAC**
- **ipsec security-association WORD<1-32> auth-algo AES-XCBC-MAC auth-key WORD<1-256> KeyLength <1-256>**
- **ipsec security-association WORD<1-32> auth-algo MD5**
- **ipsec security-association WORD<1-32> auth-algo MD5 auth-key WORD<1-256> KeyLength <1-256>**
- **ipsec security-association WORD<1-32> auth-algo SHA1**
- **ipsec security-association WORD<1-32> auth-algo SHA1 auth-key WORD<1-256> KeyLength <1-256>**
- **ipsec security-association WORD<1-32> auth-algo SHA2**
- **ipsec security-association WORD<1-32> auth-algo SHA2 auth-key WORD<1-256> KeyLength <1-256>**
- **ipsec security-association WORD<1-32> encap-proto AH**
- **ipsec security-association WORD<1-32> encap-proto ESP**
- **ipsec security-association WORD<1-32> Encrpt-algo 3DES**
- **ipsec security-association WORD<1-32> Encrpt-algo 3DES EncrptKey WORD<1-256> KeyLength <1-256>**

- **ipsec security-association WORD<1-32> Encrpt-algo AES-CBC**
- **ipsec security-association WORD<1-32> Encrpt-algo AES-CBC EncrptKey WORD<1-256> KeyLength <1-256>**
- **ipsec security-association WORD<1-32> Encrpt-algo AES-CTR**
- **ipsec security-association WORD<1-32> Encrpt-algo AES-CTR EncrptKey WORD<1-256> KeyLength <1-256>**
- **ipsec security-association WORD<1-32> Encrpt-algo NULL**
- **ipsec security-association WORD<1-32> Encrpt-algo NULL EncrptKey WORD<1-256> KeyLength <1-256>**
- **ipsec security-association WORD<1-32> key-mode automatic**
- **ipsec security-association WORD<1-32> key-mode manual**
- **ipsec security-association WORD<1-32> lifetime Bytes <1-4294967295>**
- **ipsec security-association WORD<1-32> lifetime seconds <1-4294967295>**
- **ipsec security-association WORD<1-32> mode transport**
- **ipsec security-association WORD<1-32> spi <1-4294967295>**
- **no ipsec security-association WORD<1-32>**

Command Parameters

auth-algo <AES-XCBC-MAC| 32 MD5|SHA1|SHA2>

The authentication algorithm parameter specifies the authorization algorithm, which includes one of the following values:

- AES-XCBC-MAC
- MD5
- SHA1
- SHA2

The default authentication algorithm name is MD5.

auth-key WORD<1-256> [KeyLength WORD<1-256>]

The parameter auth-key specifies the authentication key. KeyLength specifies the KeyLength value that can be a string of 1 to 256 characters. The default KeyLength is 128. The KeyLength values are as follows:

- 3DES is 48
- AES-CBC is 32, 48, or 64
- AES-CTR is 32

encap-proto <AH|ESP>

Specifies the encapsulation protocol. AH specifies the authentication header and ESP specifies the encapsulation security payload. If you configure the encapsulation protocol as AH, you cannot configure the encryption algorithms and other encryption-related attributes. You can only access the encryption algorithm parameters if you configure the encapsulation protocol to ESP. The default value is ESP.

Encrpt-algo <3DES|AES24 CBC|AES-CTR|NULL>

Specifies the encryption algorithm avlue as one of the following:

- 3DES-CBC
- AES-CBC
- AES-CTR
- NULL

The default encryption algorithm value is AES-CBC. You can only access the encryption algorithm parameters if you configure the encapsulation protocol to ESP.

EncrptKey WORD<1-256> [KeyLength WORD<1-256>]

EncrptKey specifies the encryption key. KeyLength specifies the KeyLength value that can be a string of 1 to 256 characters. The default KeyLength is 128. The KeyLength values are as follows:

- 3DES is 48
- AES-CBC is 32, 48, or 64
- AES-CTR is 32

key-mode <automatic|manual>

Specifies the key-mode as one of the following: automatic or manual. The default is manual.

lifetime <Bytes <1-4294967295>|seconds <1-4294967295>

Specifies the lifetime value in seconds or kilobytes.The default lifetime value in seconds is 8 hours. The default value in bytes is 4608000 kilobytes.

mode transport

Specifies the mode as transport, which encapsulates the IP payload and provides a secure connection between two end points.

Note

The IPsec implementation on the switch only supports transport mode.

policy WORD<1-32>

Specifies the policy ID.

spi <1-4294967295>

Specifies the security parameters index (SPI) value,which is a unique value. SPI is a tag IPsec adds to the IP header. The tag enables the system that receives the IP packet to determine under which security association to process the received packet. For IPsec to function, each peer must have the same SPI value configured on both peers for a particular policy.

WORD<1-32>

Specifies the security association.

WORD<1-32>

Specifies the security association and creates the security association.

Default

None

Command Mode

Global Configuration

ipv6 alternative-route

Enable IPv6 alternative route.

Syntax

- **default ipv6 alternative-route**
- **ipv6 alternative-route**
- **no ipv6 alternative-route**

Default

The default is enabled.

Command Mode

Global Configuration

ipv6 autoconfig

Enable or disable IPv6 autoconfiguration.

Syntax

- **ipv6 autoconfig**

Default

The default is disabled.

Command Mode

Global Configuration

ipv6 dhcp-relay fwd-path

Create the forwarding path from the client to the server.

Syntax

- **default ipv6 dhcp-relay fwd-path WORD<0-255> WORD<0-255>**
- **ipv6 dhcp-relay fwd-path WORD<0-255> WORD<0-255>**
- **ipv6 dhcp-relay fwd-path WORD<0-255> WORD<0-255> enable**
- **no ipv6 dhcp-relay fwd-path WORD<0-255> WORD<0-255>**
- **no ipv6 dhcp-relay fwd-path WORD<0-255> WORD<0-255> enable**

Command Parameters

enable

Enables the forwarding path to the server.

WORD<0-255>

Configures the forwarding path from the client to the server. The first WORD<0-255> is the IP address configured on an interface (a locally configured IP address) to forward or relay BootP or DHCP. This address is the relay agent. The relay can be a VRRP address.

WORD<0-255>

The second WORD<0-255> is the IP address of the DHCP server in the network. If this IP address corresponds to the locally configured IP network the system generates an error because IPv6 does not include broadcast.

Default

The default is disabled.

Command Mode

Global Configuration

ipv6 ecmp

IPv6 ECMP configuration.

Syntax

- **default ipv6 ecmp enable**
- **default ipv6 ecmp max-path**
- **ipv6 ecmp enable**
- **ipv6 ecmp max-path <1-8>**
- **no ipv6 ecmp enable**

Command Parameters

enable

Enables IPv6 ECMP globally.

max-path <1-8>

Specifies the maximum number of ECMP paths. The default is 1.

Default

Disabled

Command Mode

Global Configuration

ipv6 fhs dhcp-guard enable

Enable DHCP-guard globally.

Syntax

- **default ipv6 fhs dhcp-guard enable**
- **ipv6 fhs dhcp-guard enable**
- **no ipv6 fhs dhcp-guard enable**

Default

The default is disabled

Command Mode

Global Configuration

ipv6 fhs dhcp-guard policy

Configure DHCP-guard policy.

Syntax

- **ipv6 fhs dhcp-guard policy WORD<1-64>**
- **no ipv6 fhs dhcp-guard policy WORD<1-64>**

Command Parameters

WORD<1-64>

Specifies the policy name.

Default

None

Command Mode

Global Configuration

ipv6 fhs enable

Enable First Hop Security (FHS) globally.

Syntax

- **default ipv6 fhs enable**
- **ipv6 fhs enable**
- **no ipv6 fhs enable**

Default

The default is disabled

Command Mode

Global Configuration

ipv6 fhs ipv6-access-list

Create an FHS IP access list or add IP prefixes to an existing IP access list.

Syntax

- **default ipv6 fhs ipv6-access-list [WORD<1-64>] [WORD<0-46>] [ge|le| mode]**
- **ipv6 fhs ipv6-access-list [WORD<1-64>] [WORD<0-46>] [ge<0-128>] [le<0-128>] [mode <allow | deny>]**
- **no ipv6 fhs ipv6-access-list [WORD<1-64>] [WORD<0-46>]**

Command Parameters

ge <0-128>

Specifies the minimum IPv6 mask length. By default, the value is equal to the configured prefix length.

le <0-128>

Specifies the maximum IPv6 mask length. By default, the value is equal to the configured prefix length.

mode <allow | deny>

Specifies the access mode. By default, the value is allow.

WORD<0-46>

Specifies the IPv6 address or the prefix length to be added to the IP access list.

WORD<1-64>

Specifies the IP access list name.

Default

None

Command Mode

Global Configuration

ipv6 fhs mac–access-list

Create an FHS MAC access list or add MAC addresses to an existing MAC access list.

Syntax

- **default ipv6 fhs mac-access-list WORD<1-64> <0x00:0x00:0x00:0x00:0x00:0x00> [mode]**
- **ipv6 fhs mac-access-list WORD<1-64> <0x00:0x00:0x00:0x00:0x00:0x00> [mode <allow | deny>]**
- **no ipv6 fhs mac-access-list WORD<1-64> <0x00:0x00:0x00:0x00:0x00:0x00>**

Command Parameters

0x00:0x00:0x00:0x00:0x00:0x00

Specifies the MAC address to be added or deleted.

mode <allow | deny>

Specifies the access mode. By default, the value is allow.

WORD<1–64>

Specifies the MAC access list name.

Default

None

Command Mode

Global Configuration

ipv6 fhs nd-inspection enable (globally)

Enables neighbor discovery (ND) inspection globally.

Syntax

- **default ipv6 fhs nd-inspection enable**
- **ipv6 fhs nd-inspection enable**
- **no ipv6 fhs nd-inspection enable**

Default

The default is disabled.

Command Mode

Global Configuration

ipv6 fhs ra-guard enable

Enable RA Guard globally.

Syntax

- **default ipv6 fhs ra-guard enable**
- **ipv6 fhs ra-guard enable**
- **no ipv6 fhs ra-guard enable**

Default

None

Command Mode

Global Configuration

ipv6 fhs ra-guard policy

Create the RA Guard policy.

Syntax

- **ipv6 fhs ra-guard policy WORD<1-64>**
- **no ipv6 fhs ra-guard policy WORD<1-64>**

Command Parameters

WORD<1-64>

Specifies the name of the RA Guard policy to be created or deleted.

Default

None

Command Mode

Global Configuration

ipv6 fhs snooping static-binding

Enables IPv6 snooping globally. This command enables learning SBT entries on all the VLANs where IPv6 DHCP Snooping is configured. The no form of this command can be used only for deleting static SBT entries.

Syntax

- **ipv6 fhs snooping static-binding ipv6-address WORD<0-46> vlan <1-4059> mac-address <0x00:0x00:0x00:0x00:0x00:0x00> port {slot/port[/sub-port]}**
- **no ipv6 fhs snooping static-binding ipv6-address WORD<0-46> vlan <1-4059>**

Command Parameters

ipv6-address WORD<0-46>

Specifies the IPv6 address of the binding entry.

mac-address <0x00:0x00:0x00:0x00:0x00:0x00>

Specifies the MAC address of the binding entry.

port *{slot/port[/sub-port]}*

Specifies the port of the binding entry.

Identifies a single slot and port. If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

vlan <1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

Global Configuration

ipv6 forwarding (globally)

Configure IPv6 forwarding.

Syntax

- **default ipv6 forwarding**
- **ipv6 forwarding**
- **no ipv6 forwarding**

Default

By default, forwarding is globally enabled.

Command Mode

Global Configuration

ipv6 hop-limit

Insert a value into the hop-limit field of the IPv6 header.

Syntax

- **default ipv6 hop-limit <0-255>**
- **ipv6 hop-limit <0-255>**

Command Parameters

<0-255>

Inserts a value into the hop-limit field of IPv6 header in the range of 0 to 255.

Default

The default hop limit is 64.

Command Mode

Global Configuration

ipv6 icmp addr-unreach

Enables or disables ICMP network address unreachable messages.

Syntax

- **default ipv6 icmp addr-unreach**
- **ipv6 icmp addr-unreach**
- **no ipv6 icmp addr-unreach**

Default

The default is enabled.

Command Mode

Global Configuration

ipv6 icmp echo multicast-request (globally)

Enables or disables the processing of IPv6 ICMP messages sent to a multicast address globally.

Syntax

- **default ipv6 icmp echo multicast-request**
- **ipv6 icmp echo multicast-request**
- **no ipv6 icmp echo multicast-request**

Command Parameters

echo multicast-request

Enables or disables the processing of IPv6 ICMP messages sent to a multicast address globally. The default value is enabled.

Default

The default is enabled.

Command Mode

Global Configuration

ipv6 icmp drop-fragments

Enable Internet Control Message Protocol (ICMP) redirect and unreachable messages. The system inspects each incoming IPv6 ICMP packet to determine if it should drop or forward it.

Syntax

- **ipv6 icmp drop-fragments**
- **default ipv6 icmp drop-fragments**
- **no ipv6 icmp drop-fragments**

Default

The default is disabled.

Command Mode

Global Configuration

ipv6 icmp error-interval

Configure the interval (in milliseconds) for sending ICMPv6 error messages.

Syntax

- **default ipv6 icmp error-interval**
- **ipv6 icmp error-interval <0-2147483647>**

Command Parameters

<1-2147483647>

Configures the interval (in milliseconds) for sending ICMPv6 error messages. An entry of 0 seconds results in no sent ICMPv6 error messages.

Default

The default error interval is 1000.

Command Mode

Global Configuration

ipv6 icmp error-quota

Configure the number of Internet Control Message Protocol (ICMP) error messages that can be sent during the ICMP error interval.

Syntax

- **default ipv6 icmp error-quota**
- **ipv6 icmp error-quota <0-2000000>**

Command Parameters

<0-2000000>

Configures the number of internet Control Message Protocol (ICMP) error messages that the system can send during the ICMP error interval. A value of zero instructs the system not to send any ICMP error messages.

Default

The default error quota is 50.

Command Mode

Global Configuration

ipv6 icmp port-unreach

Enables or disables ICMP port unreachable messages.

Syntax

- **default ipv6 icmp port-unreach**
- **ipv6 icmp port-unreach**
- **no ipv6 icmp port-unreach**

Default

The default is enabled.

Command Mode

Global Configuration

ipv6 icmp unreach-msg

Enable Internet Control Message Protocol (ICMP) network unreachable messages.

Syntax

- **default ipv6 icmp unreach-msg**
- **ipv6 icmp unreach-msg**
- **no ipv6 icmp unreach-msg**

Default

By default ICMP network unreachable messages are disabled.

Command Mode

Global Configuration

ipv6 interface address <IPv6addr/prefixlen>

Create CLIPv6 interface and associates it with the given IPv6 address.

Syntax

- **ipv6 interface address <IPv6addr/prefixlen>**
- **no ipv6 interface address <IPv6address/prefixlen>**

Default

None

Command Mode

Global Configuration

ipv6 max-routes-trap

Enables SNMP trap generation after the maximum number of IPv6 routes are reached.

Syntax

- **default ipv6 max-routes-trap enable**
- **ipv6 max-routes-trap enable**
- **no ipv6 max-routes-trap enable**

Default

The default is enabled.

Command Mode

Global Configuration

ipv6 mld generate-log

Enable MLD log status

Syntax

- **default ipv6 mld generate-log**
- **ipv6 mld generate-log**
- **no ipv6 mld generate-log**

Default

None

Command Mode

Global Configuration

ipv6 mld generate-trap

Enable MLD traps generation

Syntax

- **default ipv6 mld generate-trap**
- **ipv6 mld generate-trap**
- **no ipv6 mld generate-trap**

Default

None

Command Mode

Global Configuration

ipv6 mroute stats enable

Enable collection of IPv6 multicast route statistics

Syntax

- **default ipv6 mroute stats enable**
- **ipv6 mroute stats enable**
- **no ipv6 mroute stats enable**

Default

The default is enabled.

Command Mode

Global Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

ipv6 neighbor

Comands to configure IPv6 neighbors globally.

Syntax

- **ipv6 neighbor WORD<0-128> port {slot/port[/sub-port]} mac 0x00:0x00:0x00:0x00:0x00:0x00 vlan <1-4059>**
- **no ipv6 neighbor WORD<0-128> port {slot/port[/sub-port]}**
- **no ipv6 neighbor WORD<0-128> vlan <1-4059>**

Command Parameters

mac 0x00:0x00:0x00:0x00:0x00:0x00

Specifies the MAC address.

port *{slot/port[/sub-port]}*

Identifies a single slot and port. If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs

3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

WORD<0-128>

Ipv6 address in hex colon format.

Default

None

Command Mode

Global Configuration

ipv6 pim disc-data-timeout

Configure the timeout to discard data.

Syntax

- **default ipv6 pim disc-data-timeout**
- **ipv6 pim disc-data-timeout <5-65535>**

Command Parameters

<5-65535>

Specifies the duration in seconds to discard data until the switch receives the join message from the rendezvous point (RP). An IP multicast discard record is created after a register packet is sent, until the timer expires or the switch receives a join message.

Default

The default is 60.

Command Mode

Global Configuration

ipv6 pim enable

Enable PIM globally on the switch.

Syntax

- **default ipv6 pim enable**
- **ipv6 pim enable**

- **no ipv6 pim enable**

Default

The default is disabled.

Command Mode

Global Configuration

ipv6 pim fwd-cache-timeout

Configure the forward cache timeout.

Syntax

- **default ipv6 pim fwd-cache-timeout**
- **ipv6 pim fwd-cache-timeout <10-86400>**

Command Parameters

<10-86400>

Specifies the forward cache timeout value.

Default

The default is 210.

Command Mode

Global Configuration

ipv6 pim join-prune-interval

Configure the interval for join and prune messages.

Syntax

- **default ipv6 pim join-prune-interval**
- **ipv6 pim join-prune-interval <1-18724>**

Command Parameters

<1-18724>

Specifies the duration in seconds before the PIM router sends out the next join or prune message to its upstream neighbors.

Default

The default is 60.

Command Mode

Global Configuration

ipv6 pim mode

Configure the PIM mode.

Syntax

- **default ipv6 pim mode**
- **ipv6 pim mode sparse**
- **ipv6 pim mode ssm**

Command Parameters

sparse

Configures the PIM mode on the switch

ssm

Configures the PIM mode on the switch

Default

The default is sparse.

Command Mode

Global Configuration

ipv6 pim spt-infinite-threshold

Enable PIM Infinite Threshold Policy for IPv6.

Syntax

- **default ipv6 pim spt-infinite-threshold**
- **ipv6 pim spt-infinite-threshold**
- **no ipv6 pim spt-infinite-threshold**

Default

The default is disabled.

Command Mode

Global Configuration

ipv6 pim register-suppression-timeout

Specify how long to suppress register messages.

Syntax

- **default ipv6 pim register-suppression-timeout**
- **ipv6 pim register-suppression-timeout <10-65535>**

Command Parameters

<10-65535>

Specifies the duration in seconds the designated router (DR) suppresses sending registers to the RP. The timer starts after the DR receives a register-stop message from the RP.

Default

The default is 60.

Command Mode

Global Configuration

ipv6 pim static-rp

Enable IPv6 static RP function.

Syntax

- **default ipv6 pim static-rp**
- **ipv6 pim static-rp**
- **ipv6 pim static-rp WORD<0-255> WORD<0-255>**
- **no ipv6 pim static-rp**

Command Parameters

WORD<0-255>

Specifies the IPv6 address and address mask of the multicast group. When combined, the IPv6 address and address mask identify the range of the multicast addresses that the RP handles.

Default

The default is disabled.

Command Mode

Global Configuration

ipv6 pim unicast-route-change-timeout

Configure the polling interval for the routing table manager (RTM).

Syntax

- **default ipv6 pim unicast-route-change-timeout**
- **ipv6 pim unicast-route-change-timeout <2-65535>**

Command Parameters

<2-65535>

Specifies the duration in seconds the switch polls the RTM for unicast routing information updates for PIM.

Default

The default is 5.

Command Mode

Global Configuration

ipv6 prefix-list

Use prefix lists to allow or deny specific route updates. A prefix list policy specifies route prefixes to match. When there is a match, the route is used. Configure a prefix list and apply the list to a route policy.

Syntax

- **ipv6 prefix-list WORD<1-64> name WORD<1-64>**
- **ipv6 prefix-list WORD<1-64> WORD<1-256> ge <0- 128>**
- **ipv6 prefix-list WORD<1-64> WORD<1-256> id <1-2147483647>**
- **ipv6 prefix-list WORD<1-64> WORD<1-256> le <0-128>**
- **no ipv6 prefix-list WORD<1-64> [WORD<1-256>]**

Command Parameters

ge <0-128>

Specifies the minimum length to match. Lower bound and higher bound mask lengths together can define a range of networks.

id <1-2147483647>

Specifies the prefix list ID.

le <0-128>

Specifies the maximum length to match. Lower bound and higher bound mask lengths together can define a range of networks.

name WORD<1-64>

Renames the specified prefix list. The name length is from 1 to 64 characters.

WORD<1-256>

Specifies the IPv6 address and length.

WORD<1-64>

Adds a prefix entry to the prefix list. WORD<1-64> is the prefix-list name. WORD<1-256> is the IPv6 address and length. <ge|le><0- 128> is the minimum and maximum length to match. Lower bound and higher bound mask lengths together can define a range of networks.

Default

None

Command Mode

Global Configuration

ipv6 route

Configure a static or discard static route to destination IPv6 address prefixes. Use this command to create static or discard static routes for data traffic in the GRT.

Syntax

- **default ipv6 route WORD<0-46>**
- **default ipv6 route WORD<0-46> enable [next-hop WORD<0-46>] [port {slot/port[/sub-port]}] [tunnel <1-2000>] [vlan <1-4059>]**
- **default ipv6 route WORD<0-46> name [next-hop WORD<0-46>] [port {slot/port[/sub-port]}] [tunnel <1-2000>] [vlan <1-4059>]**
- **ipv6 route WORD<0-46> cost <1-65535> [discard] [next-hop WORD<0-46>] [port {slot/port[/sub-port]}] [preference <1-255>] [tunnel <1-2000>] [vlan <1-4059>]**

- **ipv6 route WORD<0-46> enable [discard] [next-hop WORD<0-46>] [port {slot/port[/sub-port]}] [tunnel <1-2000>] [vlan <1-4059>]**
- **ipv6 route WORD<0-46> preference <1-255> [next-hop WORD<0-46>] [port {slot/port[/sub-port]}] [tunnel <1-2000>] [vlan <1-4059>]**
- **no ipv6 route WORD<0-46> enable [discard] [next-hop WORD<0-46>] [port {slot/port[/sub-port]}] [tunnel <1-2000>] [vlan <1-4059>]**

Command Parameters

cost <1-65535>

Specifies the cost or distance ratio to reach the destination for this node. The default cost is 1.

discard

Specifies the route as a discard static route.

enable

Enables the static route on the port. The default state for a new static route is enable.

next-hop WORD<0-46>

Specifies the IPv6 address of the next hop on this route. You do not need to specify the next hop if the devices directly connect to one another. Configure the next hop if the two nodes do not share the same network prefix but reside on the same link.

For a discard static route, configure the next hop address as ffff.ffff.ffff.ffff.ffff.ffff.ffff.ffff. This value indicates the traffic to this route is discarded.

port *{slot/port[/sub-port]}*

Specifies the port to which this entry applies. You must specify the port if the next hop is a link-local address.

Identifies a single slot and port. If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

preference <1-255>

Specifies the routing preference of the destination IPv6 address. The default preference is 5.

tunnel <1-2000>

Specifies the tunnel to which this entry applies.

vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs

3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

WORD<0-46>

Specifies the IPv6 destination network address.

Default

The default state for a new static route is enable.

Command Mode

Global Configuration

Usage Guidelines

Static routes for the management OOB, if supported, and management VLAN (non-routing mode) must use the Segmented Management Instance. The management CLIP can use the Segmented Management Instance or routes in the associated VRF routing table manager (RTM). The management VLAN (routing mode) uses the Fabric Engine routing table or routes in the associated VRF.

ipv6 route bfd (globally)

Configure an IPv6 static route for Bidirectional Forwarding Detection (BFD).

Syntax

- **default ipv6 route bfd WORD<0-128>**
- **default ipv6 route bfd WORD<0-128> port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **default ipv6 route bfd WORD<0-128> vlan <1-4094>**
- **ipv6 route bfd WORD<0-128>**
- **ipv6 route bfd WORD<0-128> port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **ipv6 route bfd WORD<0-128> vlan <1-4094>**
- **no ipv6 route bfd WORD<0-128>**
- **no ipv6 route bfd WORD<0-128> port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **no ipv6 route bfd WORD<0-128> vlan <1-4094>**

Command Parameters

WORD<0-128>

Specifies the BFD static route IPv6 address.

port

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

vlan

Specifies the VLAN ID for the BFD IPv6 static route.

Command Mode

Global Configuration

Usage Guidelines

This command is available for demonstration purposes only. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

ipv6 route preference protocol (globally)

Specifies the route preference.

Syntax

- **default ipv6 route preference protocol ospfv3-extern1**
- **default ipv6 route preference protocol ospfv3-extern2**
- **default ipv6 route preference protocol ospfv3-inter**
- **default ipv6 route preference protocol ospfv3-intra**
- **default ipv6 route preference protocol spbm-level1**
- **default ipv6 route preference protocol static**
- **ipv6 route preference protocol ospfv3-extern1**
- **ipv6 route preference protocol ospfv3-extern2**
- **ipv6 route preference protocol ospfv3-inter**
- **ipv6 route preference protocol ospfv3-intra**
- **ipv6 route preference protocol spbm-level1**
- **ipv6 route preference protocol static**

Command Parameters

{static | ospfv3-intra | ospfv3-inter | ospfv3-extern1 | ospfv3-extern2 | spbm-level1}

Specifies the protocol type.

<0-255>

Specifies the default preference value for the given protocol.

Default

None

Command Mode

Global Configuration

ipv6 route static (globally)

Enable static routes globally. If you disable static routes globally, the system removes all enabled static routes from the RTM and does not add new static routes to the RTM.

Syntax

- **default ipv6 route static enable**
- **ipv6 route static enable**
- **no ipv6 route static enable**

Command Parameters

enable

Enables the static routes globally.

static

Modifies IPv6 static route parameters.

Default

The default is enabled.

Command Mode

Global Configuration

Usage Guidelines

Static routes for the management OOB, if supported, and management VLAN must use the Segmented Management Instance. For more information, see *Fabric Engine User Guide*. The management CLIP can use the Segmented Management Instance or routes in the associated VRF routing table manager (RTM).

ipv6 source-route

Enables IPv6 source routing globally.

Syntax

- **default ipv6 source-route**
- **ipv6 source-route**
- **no ipv6 source-route**

Default

Disabled

Command Mode

Global Configuration

ipv6 tunnel

Configure a tunnel for IPv6 VLANs or brouter ports to communicate through an IPv4 network.

Syntax

- **default ipv6 tunnel <1-2000>**
- **default ipv6 tunnel <1-2000> hop-limit**
- **ipv6 tunnel <1-2000> hop-limit <0-255>**
- **ipv6 tunnel <1-2000> source {A.B.C.D} address WORD<0-46> destination {A.B.C.D}**
- **no ipv6 tunnel <1-2000>**

Command Parameters

<1-2000>

Specifies the tunnel ID.

address WORD<0-46>

Specifies the IPv6 address and length for the local VLAN or brouter port.

destination{A.B.C.D}

Configures the address of the remote endpoint of the tunnel.

hop-limit <0-255>

Configures the maximum number of hops in the tunnel.

source {A.B.C.D}

Configures the address of the local endpoint of the tunnel, or 0.0.0.0 (for IPv4) or :: (for IPv6) if the device is free to choose its addresses at tunnel establishment.

Default

The default hop-limit is 255.

Command Mode

Global Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

i-sid

Service Instance Identifier commands.

Syntax

- **default i-sid**
- **i-sid <0-16777215>**
- **i-sid name <0-16777215> WORD<0-64>**
- **no i-sid**
- **no i-sid <1-16777215>**
- **no i-sid name <1-16777215>**
- **i-sid <1-16777215> elan-transparent**
- **i-sid <1-16777215> elan**

Command Parameters

<0-16777215>

Specifies the service instance identifier (I-SID).

name WORD<0-64>

Specifies the I-SID name.

By default, the service is named ISID-x, where x correlates to the I-SID number of the service.

elan-transparent

Specifies the elan-transparent (Transparent UNI) based service.

elan

Specifies the elan (Switched UNI) based service.

Default

None

Command Mode

Global Configuration

i-sid (T-UNI based)

Create a Transparent UNI based service instance identifier (I-SID).

Syntax

- **i-sid <1-16777215> elan-transparent**
- **no i-sid <1-16777215>**

Command Parameters

<1-16777215>

Specifies the Transparent UNI based service instance identifier (I-SID).

elan-transparent

Specifies the elan-transparent (Transparent UNI) based service.

Default

None

Command Mode

Global Configuration

i-sid mac-address-entry

Service Instance Identifier FDB commands.

Syntax

- **i-sid mac-address-entry <1-16777215> flush**
- **i-sid mac-address-entry <1-16777215> sync**

Command Parameters

<1-16777215>

Specifies the FDB based service instance identifier (I-SID).

flush

Flushes MAC address on an i-sid

sync

Sync forwarding database with the other aggregation switch

Default

None

Command Mode

Global Configuration

lacp (globally)

Configure Link Aggregation Control Protocol (LACP) parameters globally. When the LACP system priority is set globally, it applies to all LACP-enabled aggregators and ports.

Syntax

- **default lacp**
- **default lacp aggr-wait-time**
- **default lacp enable**
- **default lacp fast-periodic-time**
- **default lacp slow-periodic-time**
- **default lacp system-priority**
- **default lacp timeout-scale**
- **lacp aggr-wait-time <200-2000>**
- **lacp enable**
- **lacp fast-periodic-time <200-20000>**
- **lacp slow-periodic-time <10000-30000>**
- **lacp smlt-sys-id 0x00:0x00:0x00:0x00:0x00:0x00**
- **lacp system-priority <0-65535>**
- **lacp timeout-scale <2-10>**
- **no lacp**
- **no lacp enable**

Command Parameters

aggr-wait-time <200-2000>

Sets the aggregation wait time (in milliseconds) globally. The default value is 2000.

enable

Enables the Link Aggregation Control Protocol (LACP) globally.

fast-periodic-time <200-20000>

Sets the fast-periodic time (in milliseconds) globally. The default is 20000 ms.

slow-periodic-time <10000-30000>

Sets the slow periodic time globally. The default value is 1000 ms.

smlt-sys-id <0x00:0x00:0x00:0x00:0x00:0x00:0x00>

Sets the LACP system ID globally. Enter a MAC address in the following format: 0x00:0x00:0x00:0x00:0x00:0x00:0x00.

system-priority <0-65535>

Sets the global LACP system priority. The default value is 32768.

timeout-scale <2-10>

Sets the timeout scale globally. The default value is 3.

Default

The default is disabled.

Command Mode

Global Configuration

Usage Guidelines

The *smlt-sys-id <0x00:0x00:0x00:0x00:0x00:0x00>* parameter is not supported on 4220 Series or 5320 Series.

link-flap-detect

Configure link flap detection to control link state changes on a physical port.

Syntax

- **default link-flap-detect**
- **default link-flap-detect auto-port-down**
- **default link-flap-detect frequency**
- **default link-flap-detect interval**
- **default link-flap-detect send-trap**
- **link-flap-detect auto-port-down**
- **link-flap-detect frequency <1-9999>**
- **link-flap-detect interval <2-600>**
- **link-flap-detect send-trap**

- **no link-flap-detect auto-port-down**
- **no link-flap-detect send-trap**

Command Parameters

auto-port-down

Activates automatic disabling of the port if the link-flap threshold is exceeded. The default is disabled.

frequency <1-9999>

Configures the number of changes that are allowed during the time specified by the interval command. The default is 20.

interval <2-600>

Configures the link-flap-detect interval in seconds. The default is 60.

send-trap

Activates sending traps. The default is enabled.

Default

None

Command Mode

Global Configuration

link-state group

Configures the Link-state tracking (LST) group.

Syntax

- **default link-state group <1-48> enable**
- **link-state group <1-48> downstream interface gigabitEthernet {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **link-state group <1-48> downstream mlt <1-512>**
- **link-state group <1-48> enable**
- **link-state group <1-48> upstream interface gigabitEthernet {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **link-state group <1-48> upstream mlt <1-512>**
- **no link-state group <1-48> enable**

Command Parameters

<1-48>

Specifies the link-state group ID.

downstream

Specifies a downstream interface for the LST group.

enable

Enables the command.

interface gigabitEthernet *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Specifies the slot and port for the upstream or downstream LST group.

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

mlt <1-512>

Specifies an MLT ID for the upstream or downstream LST group.

upstream

Specifies an upstream interface for the LST group.

Default

None

Command Mode

Global Configuration

lldp tx-hold-multiplier

Configure the time to live value in seconds.

Syntax

- **lldp tx-hold-multiplier <2-10>**

Command Parameters

<2-10>

Specifies the Tx hold multiplier in seconds.

Default

Default value is 4 seconds.

Command Mode

Global Configuration

lldp tx-interval

Configure the interval in seconds in which LLDP frames are transmitted.

Syntax

- **lldp tx-interval <5-32768>**
- **lldp tx-interval <5-32768> tx-hold-multiplier <2-10>**

Command Parameters

tx-hold-multiplier <2-10>

Specifies the Tx hold multiplier in seconds.

<5-32768>

Specifies the global Tx interval in seconds.

Default

Default value is 30 seconds.

Command Mode

Global Configuration

lldp vendor-specific

Configure or remove LLDP vendor-specific information on the call server and file server.

Syntax

- **lldp vendor-specific {call server <1-8> <A.B.C.D> | file server <1-4> <A.B.C.D>}**
- **no lldp vendor-specific {call server <1-8> | file server <1-4> }**

Command Parameters

call server <1-8> <A.B.C.D>

Specifies the call server number and its IP address.

file server <1-4> <A.B.C.D>

Specifies the file server number and its IP address.

Default

None

Command Mode

Global Configuration

load-license

Load a license file to unlock the licensed features.

Syntax

- **load-license WORD<1-64>**

Command Parameters

WORD<1-64>

Specifies the name of the license file in the `/intflash` directory.

Default

None

Command Mode

Global Configuration

logging level

Determine what messages the system records in the log.

Syntax

- **default logging level <0-4>**
- **logging level <0-4>**

Command Parameters

level <0-4>

Shows and configures the logging level. The level is one of the following values:

- 0 = Information; all messages are recorded.
- 1 = Warning; only warning and more serious messages are recorded.
- 2 = Error; only error and more serious messages are recorded.
- 3 = Manufacturing; this parameter is not available for customer use.
- 4 = Fatal; only fatal messages are recorded.

Default

None

Command Mode

Global Configuration

logging screen

Configure the system to display log messages on screen.

Syntax

- **default logging screen**
- **logging screen**
- **no logging screen**

Command Parameters

screen

Configures the system to display the log messages on screen.

Default

None

Command Mode

Global Configuration

logging transferFile <1-10> address {A.B.C.D}

Configure the remote host address for log transfer. The system transfers the current log file to a remote host when the log file size reaches the configured maximum size.

Syntax

- **logging transferFile <1-10> address {A.B.C.D}**
- **no logging transferFile <1-10> address {A.B.C.D}**

Command Parameters

<1-10>

Specifies the host ID. You can configure a maximum of 10 remote hosts.

address <A.B.C.D>

Specifies the IP address of the host to which to transfer the log file. The remote host must be reachable or the configuration fails.

Default

None

Command Mode

Global Configuration

logging transferFile <1-10> filename-prefix WORD<0-200>

Create the filename on the remote host. The system transfers the current log file to a remote host when the log file size reaches the configured maximum size.

Syntax

- **default logging transferFile <1-10> filename-prefix**
- **logging transferFile <1-10> filename-prefix WORD<0-200>**
- **no logging transferFile <1-10> filename-prefix**

Command Parameters

<1-10>

Specifies the host ID. You can configure a maximum of 10 remote hosts.

filename-prefix WORD<0-200>

Specifies the prefix for the filename on the remote host. If you do not configure a value, the current log file name is the default.



Important

If you configure this option, the previously transferred log file is overwritten on the remote server.

Default

None

Command Mode

Global Configuration

logging transferfile <1-10> scp username WORD<0-50>

Configure the remote host address for log transfer using Secure Copy (SCP). The system transfers the current log file to a remote host when the log file size reaches the configured maximum size.

Syntax

- **logging transferfile <1-10> scp username WORD<0-50> [address {A.B.C.D}][filename-prefix WORD<0-200>]**
- **no logging transferfile <1-10> [address {A.B.C.D}]**

Command Parameters

<1-10>

Specifies the file ID to transfer.

address <A.B.C.D>

Specifies the IP address of the host to which to transfer the log file. The remote host must be reachable or the configuration fails.

filename-prefix WORD<0-200>

Specifies the prefix for the file name of the file on the remote host. If you do not configure a value, the current log file name is the default.



Important

If you configure this option, the previously transferred log file is overwritten on the remote server.

scp username WORD<0-50>

Specifies the SCP user name for the remote server.

Default

None

Command Mode

Global Configuration

Usage Guidelines

After you configure the first remote host entry for an SCP server, the switch generates an SSH key pair for authentication. You must manually copy the public key to the remote server. Use the **show logging transferfile {1-10}** command to determine the location of the public key.



Note

As a best practice for SCP transfer, first configure parameters other than the remote server address so the switch can generate the SSH key pair, and then configure the remote server address after you upload the public key to the remote server.

logging write

Write to the log file automatically created by the system.

Syntax

- **logging write WORD<1-1536>**

Command Parameters

write WORD<1-1536>

Writes the designated string to the log file. WORD<1-1536> is the string or command that you append to the log file. If the string contains spaces, you must enclose the string in quotation marks (").

Default

None

Command Mode

Global Configuration

logical-intf isis

Create a logical IS-IS interface.

Syntax

- **logical-intf isis <1-255> dest-ip {A.B.C.D}**
- **logical-intf isis <1-255> dest-ip {A.B.C.D} name WORD<1-64>**
- **logical-intf isis <1-255> dest-ip {A.B.C.D} src-ip <A.B.C.D> [vrf WORD<1-16>]**

- **logical-intf isis <1-255> dest-ip {A.B.C.D} multi-area-virtual-link [name WORD<1-64>]**
- **logical-intf isis <1-255> vid {vlan-id[-vlan-id][,...]} primary-vid <2-4059> mlt PT_MLT<1-512>**
- **logical-intf isis <1-255> vid {vlan-id[-vlan-id][,...]} primary-vid <2-4059> port {slot/port[/sub-port]} name WORD<1-64>**
- **no logical-intf isis <1-255>**

Command Parameters

<1-255>

Specifies the IS-IS logical interface ID.

dest-ip {A.B.C.D}

Specifies the destination IP address for the logical interface.

mlt PT_MLT<1-512>

Specifies the MLT ID that the logical interface is connected to in a Layer 2 network.

multi-area-virtual-link

Specifies the logical IS-IS interface is for a virtual NNI link for Multi-area boundary nodes.

name WORD<1-64>

Specifies the administratively-assigned name of this logical interface.



Note

If you do not assign a name when you configure virtual NNI links for Multi-Area boundary nodes for 7520 Series and 7720 Series, the system autogenerates the name and displays the name as `Virtual-link-x`, where `x` is the logical interface ID.

port *{slot/port[/sub-port]}*

Identifies a single slot and port. If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

primary-vid *<2-4059>*

Specifies the primary tunnel VLAN ID associated with this Layer 2 IS-IS logical interface.

Specifies the VLAN ID in the range of 2 to 4059. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1. By default, the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *`vrf-scaling`* and *`spbm-config-mode`* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998.

src-ip <A.B.C.D> [vrf WORD<1-16>]

Configures an additional source address and optional VRF to use as the parallel tunnel for Fabric Extend.

To use an IPsec-encrypted tunnel as the parallel tunnel, ensure that you configure the same source IP address on the logical IS-IS interface and in the Fabric IPsec Gateway virtual machine.

vid *{vlan-id [-vlan-id][,...]}*

Specifies the list of VLANs that are associated with this logical interface.

The VLAN ID is in one of the following formats: A single VLAN ID (vlan-id), a range of VLAN IDs [(vlan-id)-(vlan-id)] or a series of VLAN IDs (vlan-id, vlan-id, vlan-id).

Default

None.

Command Mode

Global Configuration

Usage Guidelines

The *multi-area-virtual-link* parameter only applies to 7520 Series and 7720 Series.

login-message

Change the login prompt for CLI.

Syntax

- **default login-message**
- **login-message WORD<1-1513>**
- **no login-message**

Command Parameters

WORD<1-1513>

Changes the CLI logon prompt. WORD<1-1513> is an American Standard Code for Information Interchange (ASCII) string from 1-1513 characters.

Default

The default is Login.

Command Mode

Global Configuration

mac-address-table

Configure MAC address table settings.

Syntax

- **default mac-address-table aging-time**
- **mac-address-table aging-time <10-1000000>**

Command Parameters

aging-time <10-1000000>

Configure MAC address table aging time.

Default

The default is 600.

Command Mode

Global Configuration

macsec clear-stats

Clear MACsec statistics globally or for a specific port.

Syntax

- **macsec clear-stats**
- **macsec clear-stats port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)

- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None.

Command Mode

Global Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

macsec connectivity-association (globally)

Create and configure a connectivity-association (CA).



Note

Configure a CA name in multiples of 4 characters (4 bytes). If the total number of characters in a CA name is not a multiple of 4, it can create interoperability issues with EXOS or Switch Engine products.

Syntax

- **macsec connectivity-association WORD<5-32> connectivity-association-key WORD<10-64> [key-parity {even | odd}]**
- **no macsec connectivity-association WORD<5-32> connectivity-association-key WORD<10-32>**

Command Parameters

key-parity

Specifies Tx key parity using the following values:

- even — generates even-numbered keys
- odd — generates odd-numbered keys

If you do not specify a value for key-parity, the system defaults to 2 AN mode.



Note

This parameter only applies to static MACsec configurations.

WORD<10-64>

Specifies the connectivity-association key (CAK) value as a 32-character (128-bit) or a 64 character (256-bit) hexadecimal string.

WORD<5-32>

Specifies a new connectivity-association name as an alphanumeric string.

Default

None

Command Mode

Global Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

macsec mka clear-stats

Clear MACsec Key Agreement (MKA) statistics globally or for a specific port.

Syntax

- **macsec mka clear-stats**
- **macsec mka clear-stats port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None.

Command Mode

Global Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information, see *Fabric Engine User Guide*.

macsec mka keychain

Create a MACsec MKA keychain globally and enter MKA Keychain configuration mode.

Syntax

- **macsec mka keychain WORD<5-32>**
- **macsec mka keychain WORD<5-32> exit**
- **no macsec mka keychain WORD<5-32>**

Command Parameters

exit

Exit from mka-keychain mode.

WORD<5-32>

Specifies the name applied to the keychain.

Default

None

Command Mode

Global Configuration

Usage Guidelines

After you create a keychain, the CLI command mode changes to mka-keychain mode.

macsec mka profile

Create a MACsec Key Agreement (MKA) profile in global configuration.

Syntax

- **macsec mka profile WORD<1-16>**
- **no macsec mka profile WORD<1-16>**

Command Parameters

WORD<1-16>

Specifies the MKA profile name. An MKA profile name can consist only of alphanumeric characters (0-9, A-Z, and a-z). The profile name is case sensitive.

Default

None.

Command Mode

Global Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information, see *Fabric Engine User Guide*.

mgmt clip

Specifies management CLIP instance CLI mode.

Syntax

- **mgmt clip**
- **mgmt clip vrf WORD<1-16>**
- **no mgmt clip**

Command Parameters

vrf WORD<1-16>

Associates the management CLIP with a specific VRF. If you do not specify a VRF, the management CLIP uses the GRT.

Default

None

Command Mode

Global Configuration

mgmt convert-commit

Commits the new values configured for the IP address, VLAN, VRF, ports-tagged, ports-untagged, I-SID, or default gateway for a Management Instance.

Syntax

- **mgmt convert-commit**

Default

None

Command Mode

Global Configuration

mgmt dhcp-client

Specifies a DHCP Client configuration for management interfaces.

Syntax

- **mgmt dhcp-client {cycle | oob | vlan}**
- **no mgmt dhcp-client**

Command Parameters

cycle

Specifies the DHCP Client to attempt to obtain an IP address on the In-Band VLAN management interface, then the Out-of-Band management interface. Cycle attempts until an IP address is obtained.

oob

Specifies the DHCP Client to obtain an IP address for the Out-of-Band management interface.

vlan

Specifies the DHCP Client to obtain an IP address for the In-Band VLAN management interface.

Default

The DHCP Client for management interfaces is disabled.



Note

Exception: the DHCP Client is enabled by default in cycle mode when:

- The switch ships directly from manufacturing with Fabric Engine Release 8.6 or later.
- The primary and secondary configuration file is not on the switch.
- The primary and secondary configuration file fail to load on the switch.

Command Mode

Global Configuration

Usage Guidelines

The *cycle* and *oob* parameters only apply to hardware with a dedicated physical management interface.

mgmt oob

Specifies management Out-of-Band (OOB) instance CLI mode.

Syntax

- **mgmt oob**
- **no mgmt oob**

Command Parameters

None

Default

None

Command Mode

Global Configuration

Usage Guidelines

This command only applies to hardware with a dedicated physical management interface. For more information about feature support, see .

mgmt vlan

Specifies management VLAN instance CLI mode.

Syntax

- **mgmt vlan**
- **mgmt vlan i-sid <1–16777215>**
- **mgmt vlan <1-4059>**
- **no mgmt vlan**

Command Parameters

<1-4059>

Associates the management VLAN with an existing port-based VLAN.

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

i-sid <1–16777215>

Specifies the I-SID to create a management VLAN instance on a DvR leaf.

Default

None

Command Mode

Global Configuration

mirror-by-port

Use port mirroring to aid in diagnostic and security operations.

Syntax

- **default mirror-by-port <1-479> [enable] [mode]**
- **default mirror-by-port mirror-port <1-479> {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **default mirror-by-port monitor-mlt <1-479> <1-512>**
- **default mirror-by-port monitor-port <1-479> {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **mirror-by-port <1-479> in-port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} monitor-mlt <1-512> [enable]**
- **mirror-by-port <1-479> in-port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} monitor-mlt <1-512> enable remote-mirror-vlan-id <1-4059>**
- **mirror-by-port <1-479> in-port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} monitor-mlt <1-512> mode [both] [rx] [tx]**
- **mirror-by-port <1-479> in-port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} monitor-mlt <1-512> remote-mirror-vlan-id <1-4059> [enable]**
- **mirror-by-port <1-479> in-port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} out-port {slot/port[/sub-port][-slot/**

port[/sub-port]][,...][slot/all][all]} [enable] [mode [both] [rx] [tx]]

- **mirror-by-port <1-479> in-port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} monitor-mlt <1-512> remote-mirror-vlan-id <1-4059>**
- **mirror-by-port <1-479> [enable] [mode [both] [rx] [tx]]**
- **mirror-by-port <1-479> in-port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} { monitor-mlt <1-512>|out-port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}}**
- **mirror-by-port mirror-port <1-479> {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **mirror-by-port monitor-mlt <1-479> <1-512>**
- **mirror-by-port monitor-port <1-479> {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **no mirror-by-port <1-479> [enable]**
- **no mirror-by-port mirror-port <1-479> {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **no mirror-by-port monitor-mlt <1-479> <1-512>**
- **no mirror-by-port monitor-port <1-479> {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

<1-479>

Specifies the mirror-by-port entry ID in the range of 1 to 479.

enable

Enables or disables a mirroring instance already created in the mirror-by-port table.

in-port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}* **|monitor-mlt <1-512> |out-port** *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Creates a new mirror-by-port table entry.

- in-port specifies the mirrored port.
- monitor-mlt <1-512> specifies the mirroring MLT ID from 1–512.
- out-port specifies the mirroring port.

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

mirror-port <1-479> *{slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]}*

Modifies the mirrored port. Before you can modify an existing entry, you must disable the entry: no mirror-by-port <1-479> enable.

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

mode <both|tx|rx>

Sets the mirroring mode. The default is rx. both mirrors both egress and ingress packets. tx mirrors egress packets. rx mirrors ingress packets.

monitor-ip <1-479> {A.B.C.D} [dscp <0-63>] [ttl <2-255>]

Creates a mirroring instance for Layer 3 mirroring. The destination must be an IP address {A.B.C.D}. The default DSCP is 0 and the default TTL is 255.

monitor-isid-offset <1-1000>

Specifies the offset ID that is mapped to the actual monitor I-SID where packets are mirrored. Monitor I-SID = base monitor I-SID + offset ID. The base monitor I-SID is 16776000.

monitor-mlt <1-479> <1-512>

Modifies the monitoring MLT; <1-479> <1-512> specifies the port mirroring entry id and the MLT ID. Before you can modify an existing entry, you must disable the entry: no mirror-by-port <1-479> enable .

monitor-port <1-479> *{slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]}*

Modifies the monitoring ports. Before you can modify an existing entry, you must disable the entry: no mirror-by-port <1-479> enable.

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

monitor-vlan <1-479> *<1-4059>*

Modifies the monitoring VLAN. Before you can modify an existing entry, you must disable the entry: no mirror-by-port <1-479> enable .

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

qos <0-5>

Specifies the Quality of Service (QoS) profiles for the system. Monitoring I-SID supports six different QoS levels, each QoS level can be configured individually. Default value is 1.

remote-mirror-vlan-id *<1-4059>*

Sets the remote mirror VLAN ID.

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

The default DSCP is 0. The default TTL is 64.

Command Mode

Global Configuration

Usage Guidelines

monitor-mlt and *monitor-isid-offset* parameters do not apply to 7830 Series.

mlt

Configure MultiLink Trunking (MLT) to set up MLTs on the switch.

Syntax

- **mlt <1-512> [enable] [encapsulation dot1q] [name WORD<0-64>] [private-vlan {isolated|promiscuous|trunk}] [vlan <1-4059>]**
- **no mlt <1-512> [enable] [encapsulation dot1q] [name] [private-vlan] [vlan <1-4059>]**

Command Parameters

<1-512>

Specifies the MLT ID in the range of 1-512.

enable

Creates and enables a new MLT.

encapsulation dot1q

Sets encapsulation. dot1q enables trunking on the MLT.

name <0-64>

Configures the name for this MLT.

private-vlan {isolated|promiscuous|trunk}

Specifies the private VLAN port type for this MLT.

vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

Global Configuration

Usage Guidelines

You cannot configure an MLT name that uses all numbers, for example, 222.

mlt <1-512> member

Add ports to an MultiLink Trunking (MLT) link aggregation group (LAG) to add an existing VLAN to a link aggregation configuration.

Syntax

- **mlt <1-512> member {slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]}**
- **mlt <1-512> member {slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]} vlan <1-4059>**

- **no mlt <1-512> member {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

<1-512>

Specifies the MLT ID in the range of 1 to 512.

vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

Global Configuration

monitor-by-isid

Create or modify a monitor based on the I-SID entry.

Syntax

- **default monitor-by-isid <1-1000> enable**
- **monitor-by-isid <1-1000> egress-mlt <1-512>**
- **monitor-by-isid <1-1000> egress-ports {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **monitor-by-isid <1-1000> enable**

- **monitor-by-isid <1–1000> map-to-vid <1–4093>**
- **monitor-by-isid <1–1000> monitor-isid-offset <1-1000> {egress-mlt <1–512> egress-ports {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} map-to-vid <1–4093>}**
- **no monitor-by-isid <1–1000> egress-mlt**
- **no monitor-by-isid <1–1000> egress-ports**
- **no monitor-by-isid <1–1000> enable**
- **no monitor-by-isid <1–1000> map-to-vid**

Command Parameters

<1-1000>

Specifies the session ID.

egress-mlt <1-512>

Specifies the MLT to which the analyzers connect.

egress-ports *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Specifies the port to which the analyzers connect.

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

enable

Enables monitoring for the specific I-SID entry.

map-to-vid <1-4093>

Maps the mirrored packet to a specified VLAN ID for analysis. This parameter is optional.

Note

If you use the Extreme Integrated Application Hosting (IAH) port 1/s1 as the analyzer port on the monitoring BEB for remote mirroring, you must associate it to VLAN ID 4091.

monitor-isid-offset <1-1000>

Specifies the offset ID that is mapped to the actual monitor I-SID where packets are mirrored. Monitor I-SID = Base monitor I-SID + Offset ID. The base monitor I-SID is 16776000.

Default

None

Command Mode

Global Configuration

Usage Guidelines

monitor-isid-offset parameter does not apply to 7830 Series.

monitor-statistics

Change monitor timer commands.

Syntax

- **default monitor-statistics**
- **default monitor-statistics duration**
- **default monitor-statistics interval**
- **monitor-statistics duration <1-1800>**
- **monitor-statistics interval <1-600>**

Command Parameters

duration <1-1800>

Change monitor time duration.

interval <1-600>

Change monitor time interval.

Default

None

Command Mode

Global Configuration

monitor-statistics duration

Change monitor time duration.

Syntax

- **monitor-statistics duration <1-1800>**

Command Parameters

<1-1800>

Monitors statistics time duration in seconds.

Default

None

Command Mode

Global Configuration

monitor-statistics interval

Change monitor time interval.

Syntax

- **monitor-statistics interval <1-600>**

Command Parameters

<1-600>

Monitor statistics time interval in seconds.

Default

None

Command Mode

Global Configuration

multicast software-forwarding

Enables the IP multicast software forwarding feature. If you enable this feature, the system forwards the initial packets of an IP multicast data stream it receives and creates a corresponding hardware record for subsequent packets.

Syntax

- **multicast software-forwarding**

Default

The default is disabled.

Command Mode

Global Configuration

nodealias enable

Configures Node Alias globally.

Syntax

- **default nodealias enable**
- **nodealias enable**
- **no nodealias enable**

Default

The default is enabled.

Command Mode

Global Configuration

nodealias max-clients

Configures the number of clients the switch can store in the Node Alias client database.

Syntax

- **default nodealias max-clients**
- **nodealias max-clients <max-clients>**

Command Parameters

<max-clients>

Specifies the number of clients the switch can store in the client database. Use the CLI Help to see the available range for the switch.

Default

The default is 8,192.

Command Mode

Global Configuration

no license

Revokes a license on the switch.

Syntax

- **no license <10G WORD<1-64> | macsec | premier>**

Command Parameters

10G WORD<1-64>

Revokes a 10 Gbps port license. Specify the type of port license to revoke: 4-Port or 8-Port.

Note

Beginning with Fabric Engine 9.0, 5320 Series switches no longer require a license to operate SFP+ ports at full 10 Gbps. Use the *10G WORD<1-64>* parameter to revoke a previously installed license.

macsec

Revokes the MACsec license.

premier

Revokes the Premier license.

Default

None.

Command Mode

Global Configuration

Usage Guidelines

The *10G WORD<1-64>* parameter is only supported on 5320 Series.

ntp

Enable Network Time Protocol (NTP) globally.

Syntax

- **default ntp**
- **no ntp**
- **ntp**

Default

The default is disabled.

Command Mode

Global Configuration

ntp authentication-key

Creates an authentication key for Message Digest 5 (MD5) or Secure Hash Algorithm 1 (SHA1) authentication

Syntax

- **default ntp authentication-key <1-65534>**
- **default ntp authentication-key <1-65534> type**
- **no ntp authentication-key <1-65534>**
- **ntp authentication-key <1-65534> type <md5|sha1>**
- **ntp authentication-key <1-65534> WORD<0-20> type <md5|sha1>**
- **ntp authentication-key <1-65534> WORD<0-20>**

Command Parameters

<1-65534>

Creates the key ID.

type <md5|sha1>

Specifies the type of authentication, whether MD5 or SHA1. The default is MD5 authentication.

WORD<0-20>

Specifies the secret key.

Default

The default configuration removes the secret key.

Command Mode

Global Configuration

ntp interval

Specifies the time interval between successive NTP updates.

Syntax

- **default ntp interval**
- **ntp interval <4-17>**

Command Parameters

interval <4-17>

Specify the time interval between success NTP updates as a power of 2, in seconds.

Default

The default is 2 to the power of 8 seconds.

Command Mode

Global Configuration

ntp master <1-16>

Configures the Network Time Protocol (NTP) in master mode.

Syntax

- **ntp master**
- **ntp master <1-16>**
- **default ntp master [stratum]**
- **no ntp master**

Default

The default is disabled.

Command Mode

Global Configuration

ntp restrict

Configures the Network Time Protocol (NTP) IPv4 or IPv6 restrict entry.

Syntax

- **ntp restrict WORD<0-255>**

- **no ntp restrict WORD<0-255>**

Command Parameters

WORD<0-255>

Specifies the IPv4 or IPv6 address.

Default

The default is none.

Command Mode

Global Configuration

ntp server

Add an IP address or fully qualified domain name (FQDN) for a Network Time Protocol (NTP) server or modify existing NTP server parameters. You can configure a maximum of 20 NTP servers.

Syntax

- **default ntp server WORD<1-110> [auth-enable] [authentication-key] [enable]**
- **no ntp server WORD<1-110> [auth-enable] [enable]**
- **ntp server WORD<1-110> [auth-enable] [authentication-key <0-65534>] [enable]**

Command Parameters

auth-enable

Activates MD5 or SHA1 authentication on this NTP server. Without this option, the NTP server will not have any authentication by default.

authentication-key <0-65534>

Specifies the key ID value used to generate the MD5 or SHA1 digest for the NTP server. The default authentication key is 0, which indicates disabled authentication.

enable

Activates the NTP server.

WORD<1-110>

Specifies the IPv4 address, IPv6 address, or FQDN of the NTP server.

Default

The default configuration does not use MD5 authentication.

Command Mode

Global Configuration

ovsdb

Enters OVSDB configuration mode

Syntax

- **ovsdb**

Default

None

Command Mode

Global Configuration

password

Configure password options.

Syntax

- **default password**
- **default password default-lockout-time**
- **default password lockout WORD<0-46>**
- **default password lockout WORD<0-46> time**
- **default password password-history**
- **no password lockout WORD<0-46>**
- **password default-lockout-time <60-65000>**
- **password lockout WORD<0-46>**
- **password lockout WORD<0-46> time <60-65000>**
- **password password-history <3-32>**

Command Parameters

access level WORD<2-8>

Permits or blocks this access level. The available access level values are as follows:l1 l2 l3 ro rw rwa. The default access level is allow all.

aging-time day <1-365>

Configures the expiration period for passwords in days, from 1-365. The default aging time is 90 days.

default-lockout-time <60-65000>

Changes the default lockout time after three invalid attempts. Configures the lockout time, in seconds, and is in the 60-65000 range. The default lockout time is 60 seconds.

lockout WORD<0-46> time <60-65000>

Configures the host lockout time. WORD<0-46> is the host IP address in the format a.b.c.d. <60-65000> is the lockout-out time, in seconds, in the 60-65000 range.

min-passwd-len <10-20>

Configures the minimum length for passwords in high-secure mode. The default minimum password length is 10 characters.

password-history <3-32>

Specifies the number of previous passwords the switch stores. You cannot reuse a password that is stored in the password history. The default password history is 3.

Default

None

Command Mode

Global Configuration

password access-level

Enable CLI access levels to control the configuration actions of various users

Syntax

- **default password access-level**
- **no password access-level WORD<2-8>**
- **password access-level WORD<2-8>**
- **password access-level WORD<2-8> default-lockout-time <60-65000>**
- **password access-level WORD<2-8> min-passwd-len <10-20>**
- **password access-level WORD<2-8> aging-time <1-365>**
- **password access-level WORD<2-8> password-history <3-32>**

Command Parameters

access level WORD<2-8>

Allows or blocks this access level.

aging-time day <1-365>

Configures the expiration period for passwords in days, from 1-365.

default-lockout-time <60-65000>

Changes the default lockout time after three invalid attempts. Configures the lockout time, in seconds, and is in the 60-65000 range.

min-passwd-len <10-20>

Configures the minimum length for passwords in high-secure mode.

password-history <3-32>

Specifies the number of previous passwords the switch stores. You cannot reuse a password that is stored in the password history.

WORD<2-8>

Permits or blocks this access level. The available access levels are:

- l1
- l2
- l3
- ro
- rw
- rwa

Default

By default, all access levels are permitted.

Command Mode

Global Configuration

password aging-time

Configure the duration of your password for when it expires.

Note

If you enable enhanced secure mode using the boot config flag enhancedsecure-mode command, the aging-time can be configurable for each user level: Administrator, Privilege, Operator, Auditor, and Security.

If you configure the aging time for each user level, the aging time must be more than the global change interval value and the pre-pass notification value.

If you do not enable enhanced secure mode, the aging time is a global value for all users.

Syntax

- **default password aging-time**
- **default password aging-time user WORD<1-255>**
- **password aging-time day <1-365> user WORD<1-255>**
- **password aging-time day <1-365>**

Command Parameters

day <1-365>

Configures the password expiry date. The default is 90 days.

user WORD<1-255>

Specifies the user name.

Default

The default is 90 days.

Command Mode

Global Configuration

password change-interval

Specify the time interval between consecutive password changes.

Note

You can only access this command after you enable enhanced secure mode using the boot config flag enhancedsecure-mode command.

Syntax

- **default password change-interval**
- **password change-interval <1-999>**

Command Parameters

<1-999>

Configures the minimum interval between consecutive password changes in hours. The default is 24 hours.

Default

The default is 24 hours.

Command Mode

Global Configuration

password create-user

Configure multiple users in each role based on their user names. You can configure the following roles: administrator, security, auditor, operator, privilege. An administrator role also exists, but only one administrator can exist, and is the user who can configure user access.

Note

You can only access this command after you enable enhanced secure mode using the boot config flags enhancedsecure-mode command.

Syntax

- **password create-user auditor WORD<1-255>**
- **password create-user operator WORD<1-255>**
- **password create-user privilege WORD<1-255>**
- **password create-user security WORD<1-255>**

Command Parameters

{auditor | operator | privilege | security}

The administrator is the highest level, and has access to all of the configurations and show commands, can view the log file and security commands. Only one administrator can exists for the system.

The privilege level has access to all of the commands the administrator has access to, and is known as the emergency-admin. A user at the privilege level always has to be authenticated within the switch locally, with no RADIUS or TACACS+ authentication allowed. The privilege level must login to the switch through the console port only.

The operator level has access to all configurations for packet forwarding on Layer 2 and Layer 3, and has access to show commands to view the configuration, but cannot view the audit logs access security, or password commands.

The security level has access only to security settings and can view configurations.

The auditor can view log files, and can view all configurations, but password configurations.

WORD<1-255>

Specifies the user name of the person to connect a particular user role level with a user name.

Default

None

Command Mode

Global Configuration

password default-lockout-time

Change the default lockout time after three invalid attempts.

Syntax

- **default password default-lockout-time**
- **default password default-lockout-time min-passwd-len**
- **default password default-lockout-time min-passwd-len password-history**
- **default password default-lockout-time password-history**
- **password default-lockout-time <60-65000>**
- **password default-lockout-time <60-65000> min-passwd-len <10-20>**
- **password default-lockout-time <60-65000> min-passwd-len <10-20> password-history <3-32>**
- **password default-lockout-time <60-65000> password-history <3-32>**

Command Parameters

<60-65000>

Changes the default lockout time after three invalid attempts. Configures the lockout time, in seconds, and is in the 60-65000 range. The default lockout time is 60 seconds.

min-passwd-len <10-20>

Set the minimum length of passwords in hsecure mode.

password-history <3-32>

Specifies the number of previous passwords the switch stores. You cannot reuse a password that is stored in the password history. The default password history is 3.

Default

None

Command Mode

Global Configuration

password default-lockout-retries

Configure the default login attempts.

Syntax

- **password default-lockout-retries <1-255>**
- **default password default-lockout-retries**

Command Parameters

1-255>

Specifies the number of default login attempts. The default is 3.

Default

The default is 3.

Command Mode

Global Configuration

password delete-user

Delete a user.

Syntax

- **password delete-user WORD<1-255>**

Command Parameters

WORD<1-255>

Specifies the user name of the person to connect a particular user role level with a user name.

Default

None

Command Mode

Global Configuration

password hash

Configure the secure hash algorithm level for password hashing.

Syntax

- **default password hash**
- **password hash sha1**
- **password hash sha2**

Command Parameters

sha1

Specifies SHA1 160-bit password hash.

sha2

Specifies SHA2 512-bit password hash.

Default

The default is SHA2.

Command Mode

Global Configuration

password lockout

Lock out the host ip address

Syntax

- **default password lockout WORD<0-46>**
- **default password lockout WORD<0-46> time**
- **no password lockout WORD<0-46>**
- **password lockout WORD<0-46>**
- **password lockout WORD<0-46> time <60-65000>**

Command Parameters

lockout WORD<0-46>

Specifies the host IP address in the format a.b.c.d.

time <60-65000>

Specifies the lockout-out time, in seconds, in the 60-65000 range.

Default

None

Command Mode

Global Configuration

password max-sessions

Specify the number of password attempts before lockout.

Syntax

- **default password max-sessions user-name WORD<1-255>**
- **password max-sessions <1-8> user-name WORD<1-255>**

Command Parameters

max-sessions <1-8>

Specifies the number of logon attempts.

user-name WORD<1-255>

Specifies the user name

Default

The default is 3.

Command Mode

Global Configuration

password min-passwd-len

Configure the minimum password length in enhanced secure mode. The minimum length is 8 characters in enhanced secure ON mode.



Note

You can only access this command after you enable enhanced secure mode using the boot config flags enhancedsecure-mode command.

Syntax

- **default password min-passwd-len**
- **password min-passwd-len <8-32>**

Command Parameters

<8-32>

Configures the minimum character length required. The default is 8 in enhanced secure ON mode. In enhanced secure mode, if you configure anything lower than 8 characters, the switch displays an error message.

Default

The default is 8 characters in enhanced secure ON mode.

Command Mode

Global Configuration

password password-history

Configure the minimum number of previous passwords to remember.



Note

You can only access this command after you enable enhanced secure mode using the boot config flags enhancedsecure-mode command.

Syntax

- **default password password-history**
- **password password-history <1-99>**

Command Parameters

<1-99>

Configures the minimum number of previous passwords to remember. The default is 3.

Default

The default is 3.

Command Mode

Global Configuration

password password-rule

Configure the password complexity rule options. To meet the minimum password rule, you must have at least one of each of the following characters: uppercase, lowercase, numeric, and special character.



Note
You can only access this command after you enable enhanced secure mode using the boot config flags enhancedsecure-mode command.

Syntax

- **default password password-rule**
- **password password-rule <1-2> <1-2> <1-2> <1-2>**

Command Parameters

<1-2> <1-2> <1-2> <1-2>

The first <1-2> configures the minimum uppercase characters required.

The second <1-2> configures the minimum number of lowercase characters required.

The third <1-2> configures the minimum number of lowercase characters required.

The fourth <1-2> configures the minimum number of special characters required.

The default for each of these variables is 1.

Default

The default is 1111.

Command Mode

Global Configuration

password post-expiry-notification-interval

Configure the system to provide a notification after the password expiry date at various intervals.



Note
You can only access this command after you enable enhanced secure mode using the boot config flags enhancedsecure-mode command.

Syntax

- **default password post-expiry-notification-interval**
- **password post-expiry-notification-interval <1-99> <1-99> <1-99>**

Command Parameters

<1-99> <1-99> <1-99>

The first <1-99> configures the first post password expiry notification. The default is one day after the expiration.

The second <1-99> value configures the second post password expiry notification. The default is 7 days after the notification.

The third <1-99> configures the third post password expiry notification. The default is 30 days after the expiration.

Default

The default values for the three notifications are one day after the expiration, 7 days after the expiration, 30 days after the expiration.

Command Mode

Global Configuration

password post-pass-expiry-notification-interval

Configure the system to provide a notification after the password expiry date at various intervals.



Note

You can only access this command after you enable enhanced secure mode using the boot config flags enhancedsecure-mode command.

Syntax

- **default password post-pass-expiry-notification-interval**
- **password post-pass-expiry-notification-interval <1-99> <1-99> <1-99>**

Command Parameters

<1-99> <1-99> <1-99>

The first <1-99> configures the first post password expiry notification. The default is one day after the expiration.

The second <1-99> value configures the second post password expiry notification. The default is 7 days after the notification.

The third <1-99> configures the third post password expiry notification. The default is 30 days after the expiration.

Default

The default values for the three notifications are one day after the expiration, 7 days after the expiration, 30 days after the expiration.

Command Mode

Global Configuration

password pre-expiry-notification-interval

Configure the system to provide a notification of the password expiry date at various intervals.

Note
You can only access this command after you enable enhanced secure mode using the boot config flags enhancedsecure-mode command.

Syntax

- **default password pre-expiry-notification-interval**
- **password pre-expiry-notification-interval <1-99> <1-99> <1-99>**

Default

The default values for the three notifications are at 30 days before the expiration, 7 days before the expiration, and then on the day of expiration.

Command Mode

Global Configuration

password pre-pass-expiry-notification-interval

Configure the system to provide a notification of the password expiry date at various intervals.

Note
You can only access this command after you enable enhanced secure mode using the boot config flags enhancedsecure-mode command.

Syntax

- **default password pre-pass-expiry-notification-interval**

- **password pre-pass-expiry-notification-interval <1-99> <1-99> <1-99>**

Command Parameters

<1-99> <1-99> <1-99>

The first <1-99> configures the first pre-password expiry notification. The default is 30 days after the expiration.

The second <1-99> value configures the second pre-password expiry notification. The default is 7 days after the notification.

The third <1-99> configures the third pre-password expiry notification. The default is the day of the notification.

Default

The default values for the three notifications are at 30 days before the expiration, 7 days before the expiration, and then on the day of expiration.

Command Mode

Global Configuration

password set-password

Enable the setting of a new password in case the password expires.

Syntax

- **password set-password user-name WORD<1-255>**

Command Parameters

user-name WORD<1-255>

Specifies the user name.

Default

None

Command Mode

Global Configuration

passwordprompt

Change the password prompt for CLI sessions.

Syntax

- **default passwordprompt**
- **no passwordprompt**
- **passwordprompt WORD<1-1510>**

Command Parameters

WORD <1-1510>

Changes the CLI password prompt. WORD <1-1510> is an ASCII string from 1-1510 characters.

Default

The default is Password.

Command Mode

Global Configuration

pluggable-optical-module

Configure Digital Diagnostic Monitoring to get information concerning the status of the transmitted and received signals to allow better fault isolation and error detection.

Syntax

- **default pluggable-optical-module ddm-alarm-portdown**
- **default pluggable-optical-module ddm-monitor**
- **default pluggable-optical-module ddm-monitor-interval**
- **default pluggable-optical-module ddm-traps-send**
- **no pluggable-optical-module ddm-alarm-portdown**
- **no pluggable-optical-module ddm-monitor**
- **no pluggable-optical-module ddm-traps-send**
- **pluggable-optical-module ddm-alarm-portdown**
- **pluggable-optical-module ddm-monitor**
- **pluggable-optical-module ddm-monitor-interval <5-60>**
- **pluggable-optical-module ddm-traps-send**
- **pluggable-optical-module reset {slot/port[/sub-port]}**

Command Parameters

ddm-alarm-portdown

Sets the port down when an alarm occurs. When enabled, the port goes down when any alarm occurs.

ddm-monitor

Enables the monitoring of the digital diagnostic monitoring (DDM). When enabled, you see the internal performance condition (temperature, voltage, bias, Tx power and Rx power) of the pluggable transceiver. The default is disable.

ddm-monitor-interval <5-60>

Configures the digital diagnostic monitoring (DDM) monitor interval in the range of 5 to 60 in seconds. If any alarm occurs, the user gets the log message before the specific interval configured by the user. The default value is 5 seconds.

ddm-traps-send

Enables or disables the sending of trap messages. When enabled, the trap message is sent to the Device manager, any time the alarm occurs. The default is enable.

reset *{slot/port[/sub-port]}*

Reset a transceiver to simulate removal and reinsertion of the transceiver, which can be helpful in troubleshooting. For example, if authentication of the transceiver fails, you can reset the transceiver to begin the authentication process again. Before you use this command, ensure the port is administratively down to avoid link flaps.

Identifies a single slot and port. If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

The default is disable.

Command Mode

Global Configuration

poe fast-poe-enable

Enables Fast PoE on the switch. You must save the running PoE configuration file after you enable Fast PoE.

Syntax

- **default poe fast-poe-enable**
- **no poe fast-poe-enable**
- **poe fast-poe-enable**

Default

The default is disabled.

Command Mode

Global Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

poe perpetual-poe-enable

Enables Perpetual PoE on the switch. You must save the running PoE configuration file after you enable Perpetual PoE.

Syntax

- **default poe perpetual-poe-enable**
- **no poe perpetual-poe-enable**
- **poe perpetual-poe-enable**

Default

The default is disabled.

Command Mode

Global Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

poe poe-pd-detect-type

Configures the PD detection mode.

Syntax

- **default poe poe-pd-detect-type**
- **poe poe-pd-detect-type 802dot3af**
- **poe poe-pd-detect-type 802dot3af_and_legacy**

- **poe poe-pd-detect-type 802dot3at**
- **poe poe-pd-detect-type 802dot3at_and_legacy**
- **poe poe-pd-detect-type 802dot3bt**
- **poe poe-pd-detect-type 802dot3bt_type3**
- **poe poe-pd-detect-type 802dot3bt_type4**

Command Parameters

802dot3af

Sets PD detection mode in 802.3af.

802dot3af_and_legacy

Sets PD detection mode in 802.3af and legacy.

802dot3at

Sets PD detection mode in 802.3at.

802dot3at_and_legacy

Sets PD detection mode in 802.3at and legacy.

802dot3bt_type3

Sets PD detection mode in 802.3bt Type 3 (60W).

802dot3bt_type4

Sets PD detection mode in 802.3bt Type 4 (90W).

Default

The default detection type is automatically configured for the highest PoE standard supported on the switch.

Command Mode

Global Configuration

poe poe-power-usage-threshold

Configure the power usage threshold.

Syntax

- **default poe poe-power-usage-threshold**
- **poe poe-power-usage-threshold <1-99>**

Command Parameters

<1-99>

Specifies the PoE usage threshold in the range of 1-99 percent.

Default

The default is 80 percentage

Command Mode

Global Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

portlock enable

Enable port locking for the security of the ports from any modifications.

Syntax

- **default portlock enable**
- **no portlock enable**
- **portlock enable**

Default

None

Command Mode

Global Configuration

prompt

Change the root level prompt or the system name for run-time mode.

Syntax

- **default prompt**
- **no prompt**
- **prompt WORD <0-255>**

Command Parameters

WORD <0-255>

Specifies the box level or root level prompt in the range of 0 to 255.

Default

None

Command Mode

Global Configuration

ptp enable

Enables PTPv2 Transparent Clock with VLANs support on a switch with a valid license.

Syntax

- **ptp enable**
- **no ptp enable**

Default

The default is enabled if the switch is in Zero Touch Deployment mode with a valid license.

Command Mode

Global Configuration

Usage Guidelines

You cannot enable PTP when the MACsec boot config flag is enabled on 5320 Series and 5420 Series.

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

qos egressmap

Modify the egress mappings to change traffic priorities. As a best practice, use the default mappings.

Syntax

- **default qos egressmap 1p**
- **default qos egressmap ds**
- **qos egressmap 1p <0-7> <0-7>**
- **qos egressmap 1p <0-7> <0-7> ds <0-7> WORD <1-6>**
- **qos egressmap ds <0-7> WORD<1-6>**

Command Parameters

<0-7>

Specifies the Quality of Service (QoS) level in the range of 0 to 7.

1p <0-7>

Maps the Quality of Service (QoS) level to IEEE 802.1p priority. Each QoS level has a default IEEE 1P value:

- level 0-1
- level 1-0
- level 2-2
- level 3-3
- level 4-4
- level 5-5
- level 6-6
- level 7-7

ds <0-7>

Maps Quality of Service (QoS) level to Differentiated Services Code Point (DSCP).

WORD<1-6>

Specifies the DiffServ code point in hexadecimal, binary, or decimal.

Default

None

Command Mode

Global Configuration

qos ingressmap

Modify the ingress mappings to change traffic priorities. As a best practice, use the default mappings.

Syntax

- **default qos ingressmap 1p**
- **default qos ingressmap ds**
- **qos ingressmap 1p <0-7> <0-7>**
- **qos ingressmap ds <0-63> <0-7>**
- **qos ingressmap1p <0-7> <0-7> ds <0-63> <0-7>**

Command Parameters

1p <0-7> <0-7>

Maps the IEEE 802.1p bit to Quality of Service (QoS) level. Each QoS level has a default IEEE 1P value:

- level 0-1
- level 1-0
- level 2-2
- level 3-3
- level 4-4
- level 5-5
- level 6-6
- level 7-7

ds <0-63> <0-7>

Maps the Differentiated Services Code Point (DSCP) to Quality of Service (QoS) level.

Default

None

Command Mode

Global Configuration

qos queue-profile <1-6>

Configure a queue profile

Syntax

- **no qos queue-profile <1-6>**
- **qos queue-profile <1-6> apply**
- **qos queue-profile <1-6> member add {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **qos queue-profile <1-6> member remove {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **qos queue-profile <1-6> name WORD<0-64>**

Command Parameters

apply

Applies queue profile settings.

member add {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Adds a port member.

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

member remove {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Removes a port member.

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

name WORD<0-64>

Changes the queue profile name.

Default

None

Command Mode

Global Configuration

qos queue-profile queue <1-6> <0-7>

Configure a queue of a specific queue profile.

Syntax

- **default qos queue-profile queue <1-6> <0-7> {min-weight | rate-limit-enable}**
- **no qos queue-profile queue <1-6> <0-7> {min-weight | rate-limit-enable}**
- **qos queue-profile queue <1-6> <0-7> {min-weight <1-100> | rate-limit-enable}**

Command Parameters

min-weight <1-100>

Configures the queue weight for weighted round robin (WRR), or the rate-limit in percentage of the link rate for queue shaping enabled on the queue.

For rate-limit-enabled queues, 50 indicates 50% bandwidth. The overall rate-limit-enabled queues cannot sum higher than 100 min-weight.

If rate-limiting is not enabled, this parameter configures the weight in the WRR scheduler. These values are not associated with bandwidth percentage.

The following list identifies the default minimum weight for each queue:

- Queue 0 — 5
- Queue 1 — 20
- Queue 2 — 30
- Queue 3 — 40
- Queue 4 — 50
- Queue 5 — 50
- Queue 6 — Rate limited to 50% of configured shaper rate
- Queue 7 — Rate limited to 5% of configured shaper rate

rate-limit-enable

Enables rate limiting on a weighted queue. By default, rate limiting is enabled for queues 6 and 7 only; it is disabled for queues 0 through 5.

Default

None

Command Mode

Global Configuration

radius

Configure the switch to authenticate users identity through a central database.

Syntax

- **default radius [cli-commands-attribute <192-240>] [secure-flag]**
- **no radius [secure-flag]**
- **radius [cli-commands-attribute <192-240>] [secure-flag]**

Command Parameters

cli-commands-attribute <192-240>

Specifies the value of the CLI commands attribute. The default is 195.

secure-flag

Specifies whether RADIUS Security (RADSec) is globally enabled. The default is disabled.

Default

The default is disabled.

Command Mode

Global Configuration

radius access-priority-attribute

Configure radius access priority.

Syntax

- **default radius access-priority-attribute**
- **radius access-priority-attribute <192-240>**

Command Parameters

<192-240>

Specifies the value of the Access Priority attribute in the range of 192 to 240. The default is 192.

Default

The default value of access-priority-attribute is 192.

Command Mode

Global Configuration

radius accounting attribute-value

Configure radius accounting attribute.

Syntax

- **default radius accounting attribute-value**

- **no radius accounting**
- **radius accounting attribute-value <192-240>**

Command Parameters

<192-240>

CLI Command attribute value.

Default

The default value of the attribute-value is 193.

Command Mode

Global Configuration

radius accounting enable

Enable or disable radius accounting.

Syntax

- **default radius accounting enable**
- **no radius accounting enable**
- **radius accounting enable**

Default

The default value is disabled.

Command Mode

Global Configuration

radius accounting include-cli-commands

Enable or disable to include the CLI commands to the radius accounting.

Syntax

- **default radius accounting include-cli-commands**
- **no radius accounting include-cli-commands**
- **radius accounting include-cli-commands**

Default

The default value of include-cli-commands is disabled.

Command Mode

Global Configuration

radius auth-info-attr-value

Set the authentication information attribute value.

Syntax

- **default radius auth-info-attr-value**
- **radius auth-info-attr-value <0-255>**

Command Parameters

<0-255>

Specifies the value of the authentication-information attribute in the range of 0 to 255. The default is 91.

Default

The default value of auth-info-attr-value is 91.

Command Mode

Global Configuration

radius clear-stat

Clear the RADIUS statistics.

Syntax

- **default radius clear-stat**
- **radius clear-stat**

Default

None

Command Mode

Global Configuration

radius cli-cmd-count

Configure a Remote Access Dial-In User Services (RADIUS) accounting interim request to create a log whenever more than forty CLI commands are executed.

Syntax

- **default radius cli-cmd-count**
- **no radius cli-cmd-count**
- **radius cli-cmd-count <1-40>**

Command Parameters

<1-40>

Specifies a value of the CLI command count in the range of 1 to 40.

Default

The default value is 40.

Command Mode

Global Configuration

radius cli-profile

Use Remote Access Dial-In User Services (RADIUS) CLI profiling to grant or deny CLI command access to users being authenticated by way of the RADIUS server.

Syntax

- **default radius cli-profile**
- **no radius cli-profile**
- **radius cli-profile**

Default

The default is disabled/false.

Command Mode

Global Configuration

radius command-access-attribute

Configure Remote Access Dial-In User Services (RADIUS) authentication and RADIUS accounting attributes to determine the size of the packets received.

Syntax

- **default radius command-access-attribute**
- **radius command-access-attribute <192-240>**

Command Parameters

command-access-attribute <192-240>

Specifies the Remote Dial-In User Services (RADIUS) authentication attribute value is an integer value of the CLI command count in the range of 192 to 240.

Default

The default value is 194.

Command Mode

Global Configuration

radius dynamic-server client

Configure a client to process dynamic session changes.

Syntax

- **default radius dynamic-server client WORD<0-255> [enable] [port] [secret]**
- **no radius dynamic-server client WORD<0-255> [enable] [port] [secret]**
- **radius dynamic-server client WORD<0-255> [port <1024-65535>] [secret WORD<0-32>] enable**

Command Parameters

enable

Enables the RADIUS Dynamic Authorization client.

port <1024-65535>

Specifies the port value.

secret WORD<0-32>

Specifies a value for secret key.

WORD<0-255>

Specifies the client address or FQDN.

Default

None

Command Mode

Global Configuration

radius enable

Enable or disable Remote Access Dial-In User Services (RADIUS) authentication globally on the device to allow further configuration to take place.

Syntax

- **default radius enable**
- **no radius enable**
- **radius enable**

Default

The default value is disabled.

Command Mode

Global Configuration

radius maxserver

Configure the maximum number of servers allowed to be configured

Syntax

- **default radius maxserver**
- **radius maxserver <1-10>**

Command Parameters

<1-10>

Number of maximum server allowed to be configured.

Default

The default value is 10.

Command Mode

Global Configuration

radius mcast-addr-attr-value

Configure the multicast address attribute value.

Syntax

- **default radius mcast-addr-attr-value**
- **radius mcast-addr-attr-value <0-255>**

Default

The default value is 90.

Command Mode

Global Configuration

radius reachability keep-alive-timer

Specifies, in seconds, the interval between checks when radius server is reachable.

Syntax

- **default radius reachability keep-alive-timer**
- **radius reachability keep-alive-timer <30-600>**

Command Parameters

<30-600>

Specifies, in seconds, the interval between checks when radius server is reachable. The default is 180 seconds.

Default

The default is 180 seconds.

Command Mode

Global Configuration

radius reachability mode

Specifies status-server mode or use-radius mode. Statusserver mode provides a standard-compliant method for RADIUS reachability. Use-radius mode requires the configuration of dummy packets that are sent to RADIUS servers.

Syntax

- **radius reachability mode status-server**
- **radius reachability mode use-radius**

Command Parameters

use-radius

Use dummy radius packets to check radius reachability.

Default

The default is use-radius mode.

Command Mode

Global Configuration

radius reachability password

Configure the radius request password.

Syntax

- **default radius reachability password**
- **radius reachability password WORD<1-16>**

Command Parameters

WORD<1-16>

Configures the RADIUS request password.

Default

The default is extremenetworks

Command Mode

Global Configuration

radius reachability unreachable-timer

Specifies, in seconds, the interval between checks when radius server is unreachable.

Syntax

- **default radius reachability unreachable-timer**
- **radius reachability unreachable-timer <30-600>**

Command Parameters

<30-600>

Specifies, in seconds, the interval between checks when radius server is unreachable. The default is 60 seconds.

Default

The default is 60 seconds.

Command Mode

Global Configuration

radius reachability username

Configure the RADIUS request user name.

Syntax

- **default radius reachability username**
- **radius reachability username WORD<1-16>**

Command Parameters

WORD<1-16>

Configures the RADIUS request user name.

Default

The default is extremenetworks.

Command Mode

Global Configuration

radius secure-profile WORD<1-16>

Configures the RADSec profile.

Syntax

- **no radius secure-profile WORD<1-16>**
- **radius secure-profile WORD<1-16> [ca-cert-file WORD<0-128>] [cert-file WORD<0-128>] [key-file WORD<0-128>] [key-pwd WORD<0-255>] [WORD<1-128>]**

Command Parameters

ca-cert-file WORD<0-128>

Specifies the full path of the certification authority (CA) certificate file. Alternatively, you can specify the filename only, and the file is retrieved from the current directory. This parameter applies to certificates you install and manage manually.

cert-file WORD<0-128>

Specifies the full path of the server certificate file. Alternatively, you can specify the filename only, and the file is retrieved from the current directory. This parameter applies to certificates you install and manage manually.

key-file WORD<0-128>

Specifies the full path of the private key file. Alternatively, you can specify the filename only, and the file is retrieved from the current directory. This parameter applies to certificates you install and manage manually.

key-pwd WORD<0-255>

Specifies the private key password for the RADSec profile.

WORD<1-16>

Specifies the RADSec profile name.

WORD<1-128>

Specifies the name of the installed file. This parameter applies to certificates you install and manage manually.

Default

None.

Command Mode

Global Configuration

radius server host

Add a Remote Access Dial-In User Services (RADIUS) server to enable RADIUS service on the switch.

Syntax

- **default radius server host WORD<0-113> used-by {cli | eapol | endpoint-tracking | snmp | web} [acct-enable | acct-port | enable | key | port | priority | retry | secure-enable | secure-log-level | secure-mode | secure-ocsp | secure-profile | timeout]**
- **no radius server host WORD<0-113> used-by {cli | eapol | endpoint-tracking | snmp | web} [acct-enable | acct-port | enable | secure-enable | secure-ocsp]**
- **radius server host WORD<0-113> key WORD<0-32> [acct-enable | acct-port <1-65536> | enable | port <1-65536> | priority <1-10> | retry <0-6> | secure-enable |secure-log-level <critical | debug | error | info | warning> | secure-mode <dtls | tls> |secure-profile WORD<1-16> | timeout <1-180> | used-by {cli | eapol | endpoint-tracking | snmp | web}]**
- **radius server host WORD<0-113> used-by {cli | eapol | endpoint-tracking | snmp | web} [acct-enable | acct-port <1-65536> | enable | key WORD<0-32> | port <1-65536> | priority <1-10> | retry <0-6> | secure-enable |secure-log-level <critical | debug | error | info | warning> | secure-mode <dtls | tls> | secure-ocsp | secure-profile WORD<1-16> | timeout <1-180>]**

Command Parameters

acct-enable

Enables Remote Dial-In User Services (RADIUS) accounting on this server. The default is enabled.

acct-port <1-65536>

Configures a UDP port of the Remote Dial-In User Services (RADIUS) accounting server. The default is 1813.

enable

Enables this server.

host WORD <0-113>

Creates a host server. WORD <0-113> specifies the IPv4 address, IPv6 address, or FQDN of the host server

key WORD<0-32>

Configures a secret key.

port <1-65536>

Configures a UDP port of the Remote Dial-In User Services (RADIUS) server. The default is 1812.

priority <1-10>

Configures the priority value for this server. The default is 10.

retry <0-6>

Configures the maximum number of authentication retries. The default is 1.

secure-enable

Enable secure mode on the server. The default is disabled.

secure-ocsp

Enable RADIUS Online Certificate Status Protocol (OCSP) checking for this server. The default is disabled.

secure-log-level <critical | debug | error | info | warning>

Specifies the RADIUS secure server log severity level. The default is error.

secure-mode <dtls | tls>

Specifies the protocol for establishing the secure connection with the server. The default is TLS.

secure-profile WORD<1-16>

Specifies the secure profile name.

timeout <1-180>

Configures the number of seconds before the authentication request times out. The default is 8.

used-by {cli | eapol | endpoint-tracking | snmp | web}

Configures how the server functions:

- cli - configures the server for CLI authentication.
- eapol - configures the server for Extensible Authentication Protocol over LAN (EAPoL) authentication
- endpoint-tracking - configures the server for Endpoint Tracking authentication
- snmp - configures the server for Simple Network Management Protocol (SNMP) accounting
- web - configures the server for web authentication

The default is cli.

Default

None

Command Mode

Global Configuration

Usage Guidelines

used-by endpoint-tracking does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

radius-snmp

Enable Remote Access Dial-In User Services (RADIUS) accounting to log all of the activity of each remote user in a session on the centralized RADIUS accounting server.

Syntax

- **default radius-snmp**
- **default radius-snmp abort-session-timer**
- **default radius-snmp acct-enable**
- **default radius-snmp re-auth-timer**
- **default radius-snmp user**
- **no radius-snmp**
- **no radius-snmp acct-enable**
- **radius-snmp**
- **radius-snmp abort-session-timer <30-65535>**
- **radius-snmp acct-enable**
- **radius-snmp re-auth-timer <30-65535>**
- **radius-snmp user WORD<0-20>**

Command Parameters

abort-session-timer <30-65535>

Specifies the timer to be used for sending a stop accounting message for this particular Simple Network Management Protocol (SNMP) session. The timer value ranges from 30 to 65535. This default is 180.

acct-enable

Enables Remote Dial-In User Services (RADIUS) accounting globally. RADIUS accounting cannot be enabled unless a valid server is configured. This feature is disabled by default.

re-auth-timer <30-65535>

Timer to be sent for re-authentication the Simple Network Management Protocol (SNMP) session. The timer value ranges from 30 to 65535. The default is 180.

user WORD<0-20>

Specifies the user name for the Simple Network Management Protocol (SNMP) access. WORD<0-20> specifies the user name in a range of 0 to 20 characters. The default is snmp_user.

Default

The default value is disabled.

Command Mode

Global Configuration

rate-limit poll-interval <3-300>

Configures the interval at which Storm Control checks hardware counters for dropped packets.

Syntax

- **default rate-limit poll-interval <3-300>**
- **rate-limit poll-interval <3-300>**

Command Parameters

<3-300>

Specifies the interval, in seconds, at which this feature checks the hardware counters for packets dropped due to exceeding the configured port rate limit.

Default

The default is 3 seconds.

Command Mode

Global Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

rmon alarm

Creates an alarm interface.

Syntax

- **default rmon alarm <1-65535>**
- **default rmon alarm <1-65535> owner**
- **no rmon alarm <1-65535>**

- **rmon alarm <1-65535> WORD<1-1536> <1-3600> { absolute | delta }**
- **rmon alarm <1-65535> WORD<1-1536> <1-3600> { absolute | delta } falling-threshold <-2147483647-2147483647> event <1-65535>**
- **rmon alarm <1-65535> WORD<1-1536> <1-3600> { absolute | delta } falling-threshold <-2147483647-2147483647> event <1-65535> owner WORD<1-127>**
- **rmon alarm <1-65535> WORD<1-1536> <1-3600> { absolute | delta } falling-threshold <-2147483647-2147483647> event <1-65535> rising-threshold <-2147483647-2147483647> event <1-65535>**
- **rmon alarm <1-65535> WORD<1-1536> <1-3600> { absolute | delta } falling-threshold <-2147483647-2147483647> event <1-65535> rising-threshold <-2147483647-2147483647> event <1-65535> owner WORD<1-127>**
- **rmon alarm <1-65535> WORD<1-1536> <1-3600> { absolute | delta } owner WORD<1-127>**
- **rmon alarm <1-65535> WORD<1-1536> <1-3600> { absolute | delta } rising-threshold <-2147483647-2147483647> event <1-65535>**
- **rmon alarm <1-65535> WORD<1-1536> <1-3600> { absolute | delta } rising-threshold <-2147483647-2147483647> event <1-65535> falling-threshold <-2147483647-2147483647> event <1-65535>**
- **rmon alarm <1-65535> WORD<1-1536> <1-3600> { absolute | delta } rising-threshold <-2147483647-2147483647> event <1-65535> falling-threshold <-2147483647-2147483647> event <1-65535> owner WORD<1-127>**
- **rmon alarm <1-65535> WORD<1-1536> <1-3600> { absolute | delta } rising-threshold <-2147483647-2147483647> event <1-65535> owner WORD<1-127>**

Command Parameters

{absolute | delta}

Specifies the sample type.

<1-3600>

Specifies the sampling interval.

<1-65535>

Specifies the interface index number from 1-65535.

event <1-65535>

Specifies the event number.

falling-threshold <-2147483647-2147483647>

Specifies the falling threshold value for the sampled statistic.

owner WORD<1-127>

Specifies the name of the owner. The default value is CLI if the entry is configured using CLI. The default is SNMP if the entry is configured using EDM or SNMP.

rising-threshold <-2147483647-2147483647>

Specifies the rising threshold value for the samples statistic.

WORD<1-536>

Specifies the variable name or OID, case sensitive.

Default

None

Command Mode

Global Configuration

rmon event

Creates an event.

Syntax

- **default rmon event <1-65535>**
- **default rmon event <1-65535> community**
- **default rmon event <1-65535> description**
- **default rmon event <1-65535> owner**
- **no rmon event <1-65535>**
- **no rmon event <1-65535> log**
- **rmon event <1-65535>**
- **rmon event <1-65535> community WORD<1-127>**
- **rmon event <1-65535> description WORD<0-127>**
- **rmon event <1-65535> log**
- **rmon event <1-65535> owner WORD<1-127>**
- **rmon event <1-65535> trap**

Command Parameters

<1-65535>

Specifies the event index number.

community WORD<1-127>

Specifies the SNMP community where you can send SNMP traps, with a string length 1 to 127. You can set the community, but the trap is not filtered out. The trap is sent to all configured snmp-server hosts, regardless of the value of this field.

description WORD<0-127>

Specifies the event description.

log

Specifies if this event stores a log when the event is triggered by the alarm.

owner WORD<1-127>

Specifies the name of the event owner. The default value is CLI if the entry is configured using CLI. The default is SNMP if the entry is configured using EDM or SNMP.

trap

Specifies if this event will send a trap when the event is triggered by the alarm. The trap will be sent to all the snmp-server hosts configured in the snmp table.

Default

None

Command Mode

Global Configuration

rmon history

Creates a history control interface.

Syntax

- **default rmon history <1-65535>**
- **default rmon history <1-65535> buckets**
- **default rmon history <1-65535> interval**
- **default rmon history <1-65535> owner**
- **no rmon history <1-65535>**
- **rmon history <1-65535> {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **rmon history <1-65535> {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} buckets <1-65535>**
- **rmon history <1-65535> {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} interval <1-3600>**
- **rmon history <1-65535> {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} owner WORD<1-127>**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

<1-65535>

Specifies the index number of the history control interface.

buckets <1-65535>

Specifies the number of buckets requested. The default is 50.

interval <1-3600>

Specifies the the time interval in seconds over which the data is sampled for each bucket. The default is 1800.

owner WORD<1-127>

Specifies the name of the entry owner. The default value is CLI if the entry is configured using CLI. The default is SNMP if the entry is configured using EDM or SNMP.

Default

None

Command Mode

Global Configuration

rmon stats

Creates an ether-stats control interface.

Syntax

- **default rmon stats <1-65535>**
- **default rmon stats <1-65535> owner**
- **no rmon stats <1-65535>**
- **rmon stats <1-65535> {slot/port[/sub-port][-slot/port[/sub-port]] [,...][slot/all][all]}**
- **rmon stats <1-65535> {slot/port[/sub-port][-slot/port[/sub-port]] [,...][slot/all][all]} owner WORD<1-127>**
- **rmon stats <1-65535> owner WORD<1-127>**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

<1-65535>

Specifies the index number of the ether stats control interface.

owner WORD<1-127>

Specifies the name of the entry owner. The default value is CLI if the entry is configured using CLI. The default is SNMP if the entry is configured using EDM or SNMP.

Default

None

Command Mode

Global Configuration

rmon util-method

Controls whether port utilization is calculated in half or full duplex.

Syntax

- **default rmon util-method**
- **rmon util-method <half|full>**

Command Parameters

<half|full>

Controls whether port utilization is calculated in half or full duplex.

Default

The default is half.

Command Mode

Global Configuration

route-map

Configure and enable a route policy so that the switch can control routes that certain packets can take.

Syntax

- **default route-map WORD<1-64> <1-65535>**
- **no route-map WORD<1-64> <1-65535>**
- **route-map WORD<1-64> <1-65535> [permit | deny]**

Command Parameters

<1-65535>

Specifies the sequence number for the route policy.

<permit|deny>

Permit or deny the route. The default is permit.

WORD<1-64>

Specifies the policy name.

Default

None

Command Mode

Global Configuration

router bfd

Enables Bidirectional Forwarding Detection (BFD) on the global router.

Syntax

- **default router bfd enable**
- **no router bfd enable**
- **router bfd [enable]**

Default

The default is disabled.

Command Mode

Global Configuration

router bgp

Access the router configuration mode to configure the Border Gateway Protocol (BGP) commands.

Syntax

- **router bgp**
- **router bgp WORD<0-11>**
- **router bgp WORD<0-11> enable**

Command Parameters

enable

Enables BGP on the router.

WORD <0-11>

Specifies the AS number. You cannot enable BGP until you change the local AS to a value other than 0.

Default

None

Command Mode

Global Configuration

router bgp as-4-byte enable

Globally enable 4-byte autonomous system numbers.

Syntax

- **default router bgp as-4-byte enable**
- **no router bgp as-4-byte enable**
- **router bgp as-4-byte enable**

Default

The default is disabled.

Command Mode

Global Configuration

router bgp as-dot enable

Globally enable the AS dot representation for 4-byte AS numbers.

Syntax

- **default router bgp as-dot enable**
- **no router bgp as-dot enable**
- **router bgp as-dot enable**

Default

The default is disabled.

Command Mode

Global Configuration

router isis

Enter Intermediate-System-to-Intermediate-System (IS-IS) Router Configuration mode.

Syntax

- **default router isis**
- **no router isis**
- **router isis**

Default

The default is disabled.

Command Mode

Global Configuration

router isis enable

Enable Intermediate-System-to-Intermediate-System (IS-IS) globally. If you use the default or no format of this command, you disable IS-IS globally.

Syntax

- **default router isis enable**
- **no router isis enable**
- **router isis enable**

Default

The default is disabled.

Command Mode

Global Configuration

router isis remote

Enter Intermediate-System-to-Intermediate-System (IS-IS) Router Remote Configuration mode.

Syntax

- **default router isis remote**
- **no router isis remote**
- **router isis remote**

Default

The default is disabled.

Command Mode

Global Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

You cannot enable TTL handling for bridged traffic with routed SPB IP Multicast if **router isis remote** is administratively enabled. You cannot enable **router isis remote** if TTL handling is already configured.

router isis remote enable

Enables router Intermediate-System-to-Intermediate-System (IS-IS) remote configuration globally.

Syntax

- **default router isis remote [enable]**
- **no router isis remote [enable]**
- **router isis remote [enable]**

Default

The default is disabled.

Command Mode

Global Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

You cannot enable TTL handling for bridged traffic with routed SPB IP Multicast if **router isis remote** is administratively enabled. You cannot enable **router isis remote** if TTL handling is already configured.

router ospf

Enable OSPF for the switch. If you do not use an optional parameter with the command, you enter the OSPF Router Configuration mode.

Syntax

- **default router ospf**
- **default router ospf enable**
- **default router ospf ipv6-enable**
- **no router ospf**
- **no router ospf enable**
- **no router ospf ipv6-enable**
- **router ospf**
- **router ospf enable**
- **router ospf ipv6-enable**

Command Parameters

enable

Enables OSPF routing on the switch.

ipv6-enable
Enables OSPFv3 for IPv6 routing.

Default

None

Command Mode

Global Configuration

router rip enable

Enable RIP globally.

Syntax

- **default router rip enable**
- **no router rip enable**
- **router rip**
- **router rip enable**
- **router rip enable vrf <1-511>**

Command Parameters

enable
Globally enables RIP on the VRF or switch.

vrf <1-511>
Enables RIP for a particular VRF. <1-511> denotes the range of the VRF id.

Default

None

Command Mode

Global Configuration

router rip ipv6-enable

Enable RIPng globally.

Syntax

- **default router rip ipv6-enable**

- **no router rip ipv6-enable**
- **router rip ipv6-enable**

Default

The default is disabled.

Command Mode

Global Configuration

router vrf

Enters VRF Configuration mode where you can enter commands to configure the VRF context.

Syntax

- **router vrf WORD <1-16>**

Command Parameters

WORD<0-16>

Specifies the VRF name.

Default

None

Command Mode

Global Configuration

Usage Guidelines

You cannot enter this mode for the untrusted or unrestricted segments of a Segmented VRF.

router vrrp

Enable VRRP for the switch.

Syntax

- **router vrrp**

Default

None

Command Mode

Global Configuration

run spbm

Configure all SPBM, CFM, IS-IS and interface level settings in one command.

Syntax

- **run spbm**
- **run spbm clean**

Command Parameters

clean

Removes existing SPBM configurations, disables CFM, and returns the CFM MEP-ID and level configurations to default values.

Default

None

Command Mode

Global Configuration

Usage Guidelines

If the switch uses Zero Touch Fabric Configuration, you must run the following commands before you use the **run spbm clean** command:

- **no auto-sense onboarding i-sid**
- **no vlan i-sid <1-4059>**

run spbm interface

Configures IS-IS SPBM port and MLT interfaces.

Syntax

- **run spbm interface**
- **run spbm interface clean**

Command Parameters

clean

Deletes specified IS-IS port and MLT interfaces.

Default

None

Command Mode

Global Configuration

service-probe default-gateway (A.B.C.D)

Creates a static IP association with the default gateway.

Syntax

- **no service-probe default-gateway**
- **service-probe default-gateway {A.B.C.D}**

Command Parameters

{A.B.C.D}

Specifies the IP address for the default gateway. The default gateway must be non-local to the switch.

Default

By default, the switch uses DHCP to dynamically learn the IP address unless you create a static configuration.

Command Mode

Global Configuration

service-probe enable

Enables the Network Service Probe.

Syntax

- **no service-probe enable**
- **service-probe enable**

Default

The default is disabled.

Command Mode

Global Configuration

service-probe ip static {A.B.C.D/X | (A.B.C.D) (A.B.C.D)}

Creates a static IP address and subnet mask for the Network Service Probe.

Syntax

- **no service-probe ip**
- **service-probe ip static {<A.B.C.D/X> | (A.B.C.D) (A.B.C.D)}**

Command Parameters

{<A.B.C.D/X> | (A.B.C.D) (A.B.C.D)}

Specifies the IP address and subnet mask for the Network Service Probe. You can use either the <A.B.C.D/X> or <A.B.C.D> <A.B.C.D> notation format.

Default

By default, the switch uses DHCP to acquire an IP address unless you create a static configuration.

Command Mode

Global Configuration

service-probe query dns

Query dynamic IP addresses to test domain resolution.

Syntax

service-probe query dns [primary-dynamic | secondary-dynamic | tertiary-dynamic]

Command Parameters

primary-dynamic

Specifies the primary DNS server learned through DHCP. If you do not specify a DNS server parameter, the switch uses primary-dynamic by default.

secondary-dynamic

Specifies the secondary DNS server learned through DHCP. This option sends the DNS query to the second DHCP-assigned DNS server.

tertiary-dynamic

Specifies the tertiary DNS server learned through DHCP. This option sends the DNS query to the third DHCP-assigned DNS server.

Default

If you do not specify a DNS server parameter, the switch uses primary-dynamic by default.

Command Mode

Privilege EXEC

service-probe vlan <1-4059>

Creates the Network Service Probe and associates it with a VLAN ID.

Syntax

- **no service-probe**
- **service-probe vlan <1-4059>**

Command Parameters

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

By default, no Network Service Probe interface exists.

Command Mode

Global Configuration

sflow agent-ip

Specifies the agent IP address (IPv4).

Syntax

- **no sflow agent-ip**
- **sflow agent-ip {A.B.C.D}**

Command Parameters

sflow agent-ip {A.B.C.D}

Specifies the agent IP address (IPv4).

Default

None

Command Mode

Global Configuration

sflow collector

Configure an sFlow collector to determine the device to which the sFlow agent sends sFlow datagrams.

Syntax

- **default sflow collector <1-2>**
- **default sflow collector <1-2> port**
- **default sflow collector <1-2> timeout**
- **no sflow collector <1-2>**
- **no sflow collector <1-2> address {A.B.C.D}**
- **no sflow collector <1-2> owner WORD<1-20>**
- **sflow collector <1-2>**
- **sflow collector <1-2> address {A.B.C.D}**
- **sflow collector <1-2> owner WORD<1-20>**
- **sflow collector <1-2> port <1-65535>**
- **sflow collector <1-2> timeout <1-65535>**

Command Parameters

<1-2>

Specifies the ID to export sFlow datagrams to the collector ID.

address {A.B.C.D}

Specifies the collector IP address.

owner WORD<1–20>

Specifies the sFlow collector name.

port <1–65535>

Specifies the destination UDP port. The default port is 6343.

timeout <1–65535>

Specifies the time remaining (in seconds) before the collector is released. The default is 0, which means you are not using the collector.

Default

None

Command Mode

Global Configuration

sflow enable

Globally enables sFlow.

Syntax

- **default sflow enable**
- **no sflow enable**
- **sflow enable**

Default

None

Command Mode

Global Configuration

slot shutdown

Shuts down the specific slot.

Syntax

- **default slot shutdown {slot[-slot][,...]}**
- **no slot shutdown {slot[-slot][,...]}**
- **slot shutdown {slot[-slot][,...]}**

Command Parameters

{slot[-slot][,...]}

Specifies the slot number. The valid slot numbers differ depending on hardware platform. For more information about slot numbers, see the hardware documentation.

Default

None

Command Mode

Global Configuration

Usage Guidelines

This command applies to 7830 Series only.

slpp (globally)

Enable the Simple Loop Prevention Protocol (SLPP) globally and for a VLAN to detect a loop and automatically stop it. The VLAN configuration controls the boundary of SLPP-PDU transmission.

Syntax

- **default slpp**
- **default slpp enable**
- **default slpp tx-interval**
- **no slpp**
- **no slpp enable**
- **no slpp vid <1-4059>**
- **slpp enable**
- **slpp tx-interval <500-5000>**
- **slpp vid <1-4059>**

Command Parameters

enable

Enables or disables the SLPP operation. You must enable the SLPP operation to enable the SLPP packet transmit and receive process. If you disable the SLPP operation, the system sends no SLPP packets and discards received SLPP packets. The default is disabled.

tx-interval <500-5000>

Configures the SLPP packet transmit interval, expressed in milliseconds, in a range from 500-5000. The default is 500.

vid *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

Global Configuration

slpp-guard ethertype

Configures Set SLPP Guard ethertype.

Syntax

- **default slpp-guard ethertype**
- **slpp-guard ethertype <0x0600–0xffff>**

Command Parameters

<0x0600-0xffff>

Specifies a hexadecimal value ranging from 0x0600– 0xffff. The default value is 0x8102.

Default

The default value is 0x8102.

Command Mode

Global Configuration

smtp

Configures SMTP to generate email notifications for component failures, critical conditions, or general system health status.

Syntax

- **default smtp enable**
- **no smpt enable**
- **smpt enable**
- **smtp domain-name WORD<1-254>**
- **smtp event-id add WORD<1-1100**
- **smtp event-id remove WORD<1-1100>**
- **smtp port <1-65535>**
- **smtp receiver-email add WORD<3-1274>**
- **smtp receiver-email remove WORD<3-1274>**
- **smtp sender-email WORD<3-254>**
- **smtp server WORD<1-256>**
- **smtp status-send-timer <0 | 30-43200>**

Command Parameters

status-send-timer <0 | 30-43200>

Specifies the interval, in seconds, at which the switch sends status information. The default is 30 seconds. A value of 0 means the switch does not send status information.

domain-name WORD<1-254>

Specifies the hostname or IPv4 address.

enable

Enables SMTP.

event id {add | remove} WORD<1-1100>

Add or remove log event to the list of events that generate email notification. You can specify multiple event IDs in a single command by separating them with a comma. The event ID can be up to 10 digits in hexadecimal format.

port <1-65535>

Specifies the SMTP server TCP port number. The default is 25.

receiver-mail {add | remove} WORD<3-1274>

Adds or removes an email address to the recipient list. The recipients receive the email notification generated by the switch. The maximum length for the address is 254 characters.

sender-mail WORD<3-254>

Specifies the email address that displays it in the From field of the message that the switch generates. By default, the switch uses <SystemName>@default.com.

server WORD<1-256>

Specifies the SMTP server address. You can use either a hostname or IPv4 address. If you use a hostname, you must configure the DNS client on the switch.

Default

The default is disabled.

Command Mode

Global Configuration

snmplog

Use SNMP trap logging to log to the system log file. This allows you to send SNMP logs to a system log server.

Syntax

- **default snmplog**
- **default snmplog enable**
- **no snmplog enable**
- **snmplog enable**

Default

The default is disabled.

Command Mode

Global Configuration

snmp-server authentication-trap enable

Activate the generation of authentication traps.

Syntax

- **default snmp-server authentication-trap**
- **no snmp-server authentication-trap**
- **snmp-server authentication-trap enable**

Default

The default is disabled/false.

Command Mode

Global Configuration

snmp-server community

Create a community to use in forming a relationship between an SNMP agent and one or more SNMP managers. You require SNMP community strings to access the system using SNMP-based management software.

Syntax

- **no snmp-server community WORD<1-32>**
- **no snmp-server community-by-index WORD<1-32>**
- **snmp-server community WORD<1-32> group WORD<0-32>**
- **snmp-server community WORD<1-32> group WORD<0-32> secname WORD<1-32>**
- **snmp-server community WORD<1-32> index WORD<1-32> secname WORD<1-32>**
- **snmp-server community WORD<1-32> index WORD<1-32> secname WORD<1-32> context WORD<0-32>**
- **snmp-server community WORD<1-32> secname WORD<1-32>**
- **snmp-server community WORD<1-32> secname WORD<1-32> context WORD<0-32>**

Command Parameters

community-by-index WORD<1-32>

Specifies the community string by index to delete.

context WORD<0-32>

Specifies the context in which management information is accessed when you use the specified community string.

group WORD<0-32>

Specifies the group name.

index WORD<0-32>

Specifies the unique index value of a row in this table.

secname WORD<0-32>

Maps the community string to the security name in the VACM Group Member Table. The range is 0-32 characters.

WORD<1-32>

Specifies a community string, from 1-32 characters.

Default

None

Command Mode

Global Configuration

snmp-server contact

Configure the contact information for the system.

Syntax

- **default snmp-server contact**
- **no snmp-server contact**
- **snmp-server contact WORD<0-255>**

Command Parameters

WORD<0-255>

Changes the sysContact information for the switch. WORD<0-255> is an ASCII string from 0-255 characters (for example a phone extension or e-mail address.)

Default

None

Command Mode

Global Configuration

snmp-server group

Create a new user group member to logically group users who require the same level of access. Create new access for a group in the View-based Access Control Model (VACM) table to provide access to managed objects.

Syntax

- **no snmp-server group WORD<1-32>**
- **no snmp-server group WORD<1-32> WORD<0-32>**
- **snmp-server group WORD<1-32> WORD<0-32> auth-no-priv**
- **snmp-server group WORD<1-32> WORD<0-32> auth-no-priv notify-view WORD<0-32>**
- **snmp-server group WORD<1-32> WORD<0-32> auth-no-priv read-view WORD<0-32>**
- **snmp-server group WORD<1-32> WORD<0-32> auth-no-priv write-view WORD<0-32>**
- **snmp-server group WORD<1-32> WORD<0-32> auth-priv**
- **snmp-server group WORD<1-32> WORD<0-32> auth-priv notify-view WORD<0-32>**

- **snmp-server group WORD<1-32> WORD<0-32> auth-priv read-view WORD<0-32>**
- **snmp-server group WORD<1-32> WORD<0-32> auth-priv write-view WORD<0-32>**
- **snmp-server group WORD<1-32> WORD<0-32> no-auth-no-priv**
- **snmp-server group WORD<1-32> WORD<0-32> no-auth-no-priv notify-view WORD<0-32>**
- **snmp-server group WORD<1-32> WORD<0-32> no-auth-no-priv read-view WORD<0-32>**
- **snmp-server group WORD<1-32> WORD<0-32> no-auth-no-priv write-view WORD<0-32>**

Command Parameters

auth-no-priv

Assigns the minimum level of security required to gain the access rights allowed by this conceptual row. If the auth-no-priv parameter is included, it creates one entry for SNMPv3 access.

auth-priv

Assigns the minimum level of security required to gain the access rights allowed by this conceptual row. If the auth-priv parameter is included, it creates one entry for SNMPv3 access.

group WORD<1-32>

Assigns the group name for data access. The range is 1-32 characters. Use the no operator to remove this configuration.

no-auth-no-priv

Assigns the minimum level of security required to gain the access rights allowed by this conceptual row. If the no-auth-no-priv parameter is included, it creates three entries, one for SNMPv1, one for SNMPv2c access, and one for SNMPv3c access.

notify-view WORD<0-32>

Specifies the view name in the range of 0-32 characters.

read-view WORD<0-32>

Specifies the view name in the range of 0-32 characters.

WORD<1-32> WORD<1-32>

The first WORD<1-32> specifies the group name for data access.

The second WORD<1-32> specifies the context name.

If you use a particular group name value but with different context names, you create multiple entries for different contexts for the same group. You can omit the context name and use the default. If the context name value ends in the wildcard character (*), the resulting entries match a context name that begins with that context. For example, a context name value of foo* matches contexts starting with foo, such as foo6 and foofofum.

Use the no operator to remove this configuration.

write-view WORD<0-32>

Specifies the view name in the range of 0-32 characters.

Default

None

Command Mode

Global Configuration

snmp-server host v1

Configure an SNMP host so that the switch can forward SNMP traps to a host for monitoring.

Syntax

- **no snmp-server host WORD<1-256> port <1-65535> v1 WORD<1-32>**
- **no snmp-server host WORD<1-256> v1 WORD<1-32>**
- **snmp-server host WORD<1-256> port <1-65535> v1 WORD<1-32>**
- **snmp-server host WORD<1-256> port <1-65535> v1 WORD<1-32> filter WORD<1-32>**
- **snmp-server host WORD<1-256> v1 WORD<1-32>**
- **snmp-server host WORD<1-256> v1 WORD<1-32> filter WORD<1-32>**

Command Parameters

filter WORD<1-32>

Specifies a filter profile name.

port<1-65535>

Specifies the host server port number.

v1 WORD <1-32> [filter WORD<1-32>]

Specifies the SNMP v1 security name.

WORD<1-256>

Specifies either an IPv4 or IPv6 address.

Default

None

Command Mode

Global Configuration

snmp-server host v2

Configure an SNMPv2 host so that the switch can forward SNMP traps to a host for monitoring.

Syntax

- **default snmp-server host WORD<1-256> port <1-65535> v2c WORD<1-32>**
- **default snmp-server host WORD<1-256> port <1-65535> v2c WORD<1-32> mms**
- **default snmp-server host WORD<1-256> port <1-65535> v2c WORD<1-32> retries**
- **default snmp-server host WORD<1-256> port <1-65535> v2c WORD<1-32> timeout**
- **default snmp-server host WORD<1-256> v2c WORD<1-32>**
- **default snmp-server host WORD<1-256> v2c WORD<1-32> mms**
- **default snmp-server host WORD<1-256> v2c WORD<1-32> retries**
- **default snmp-server host WORD<1-256> v2c WORD<1-32> timeout**
- **no snmp-server host WORD<1-256> port <1-65535> v2c WORD<1-32>**
- **no snmp-server host WORD<1-256> v2c WORD<1-32>**
- **snmp-server host WORD<1-256> port <1-65535> v2c WORD<1-32>**
- **snmp-server host WORD<1-256> port <1-65535> v2c WORD<1-32> filter WORD<1-32>**
- **snmp-server host WORD<1-256> port <1-65535> v2c WORD<1-32> inform**
- **snmp-server host WORD<1-256> port <1-65535> v2c WORD<1-32> inform mms <0-2147483647>**
- **snmp-server host WORD<1-256> port <1-65535> v2c WORD<1-32> inform retries <0-255>**
- **snmp-server host WORD<1-256> port <1-65535> v2c WORD<1-32> inform timeout <1-2147483647>**
- **snmp-server host WORD<1-256> v2c WORD<1-32>**
- **snmp-server host WORD<1-256> v2c WORD<1-32> filter WORD<1-32>**
- **snmp-server host WORD<1-256> v2c WORD<1-32> inform**
- **snmp-server host WORD<1-256> v2c WORD<1-32> inform mms <0-2147483647>**
- **snmp-server host WORD<1-256> v2c WORD<1-32> inform retries <0-255>**
- **snmp-server host WORD<1-256> v2c WORD<1-32> inform timeout <1-2147483647>**

Command Parameters

filter WORD<1-32>

Specifies a filte profile name.

inform

Specifies the notify type.

mms <0-2147483647>

Specifies the maximum message size.

port <1-65535>

Specifies the port number that needs to be changed.

retries <0-255>

Specifies the number of retries.

timeout <1-2147483647>

Specifies the timeout value.

v2c WORD<1-32>

Specifies the SNMPv2 security name

WORD<1-256>

Specifies the IPv4 or IPv6 host address.

Default

None

Command Mode

Global Configuration

snmp-server host v3

Configure an SNMPv3 host so that the switch can forward SNMP traps to a host for monitoring.

Syntax

- **default snmp-server host WORD<1-256> port <1-65535> v3 WORD<1-32>**
- **default snmp-server host WORD<1-256> port <1-65535> v3 WORD<1-32> retries**
- **default snmp-server host WORD<1-256> port <1-65535> v3 WORD<1-32> timeout**
- **default snmp-server host WORD<1-256> v3 WORD<1-32>**
- **default snmp-server host WORD<1-256> v3 WORD<1-32> retries**
- **default snmp-server host WORD<1-256> v3 WORD<1-32> timeout**

- **no snmp-server host WORD<1-256> port <1-65535> v3 WORD<1-32>**
- **no snmp-server host WORD<1-256> v3 WORD<1-32>**
- **snmp-server host WORD<1-256> port <1-65535> v3 { noAuthNoPriv | authNoPriv | authPriv } WORD<1-32>**
- **snmp-server host WORD<1-256> port <1-65535> v3 { noAuthNoPriv | authNoPriv | authPriv } WORD<1-32> filter WORD<1-32>**
- **snmp-server host WORD<1-256> port <1-65535> v3 { noAuthNoPriv | authNoPriv | authPriv } WORD<1-32> inform**
- **snmp-server host WORD<1-256> port <1-65535> v3 { noAuthNoPriv | authNoPriv | authPriv } WORD<1-32> inform retries <0-255>**
- **snmp-server host WORD<1-256> port <1-65535> v3 { noAuthNoPriv | authNoPriv | authPriv } WORD<1-32> inform timeout <1-2147483647>**
- **snmp-server host WORD<1-256> v3 { noAuthNoPriv | authNoPriv | authPriv } WORD<1-32>**
- **snmp-server host WORD<1-256> v3 { noAuthNoPriv | authNoPriv | authPriv } WORD<1-32> filter WORD<1-32>**
- **snmp-server host WORD<1-256> v3 { noAuthNoPriv | authNoPriv | authPriv } WORD<1-32> inform**
- **snmp-server host WORD<1-256> v3 { noAuthNoPriv | authNoPriv | authPriv } WORD<1-32> inform retries <0-255>**
- **snmp-server host WORD<1-256> v3 { noAuthNoPriv | authNoPriv | authPriv } WORD<1-32> inform timeout <1-2147483647>**

Command Parameters

{noAuthNoPriv|authNoPriv|authPriv}

Specifies the security level.

filter WORD<1-32>

Specifies a filter profile name.

inform

Specifies the notify type.

mms <0-2147483647>

Specifies the maximum message size.

port <1-65535>

Specifies the port number that needs to be changed.

retries <0-255>

Specifies the number of retries.

timeout <1-2147483647>

Specifies the timeout value.

v3c WORD<1-32>

Specifies the SNMPv3 security name

WORD<1-256>

Specifies the IPv4 or IPv6 host address.

Default

None

Command Mode

Global Configuration

snmp-server location

Configure the sysLocation information for the system. <WORD 0-255> is an ASCII string from 0-255 characters.

Syntax

- **default snmp-server location**
- **no snmp-server location**
- **snmp-server location WORD<0-255>**

Command Parameters

WORD <0255>

Specifies an ASCII string from 0-255 characters.

Default

None

Command Mode

Global Configuration

snmp-server login-success-trap enable

Configure the generation of login success traps.

Syntax

- **default snmp-server login-success-trap**
- **no snmp-server login-success-trap**
- **snmp-server login-success-trap enable**

Default

The default is disabled/false.

Command Mode

Global Configuration

snmp-server name

Configure the sysName information for the system. WORD<0-255> is an ASCII string from 0-255 characters.

Syntax

- **default snmp-server name**
- **no snmp-server name**
- **snmp-server name WORD<0-255>**

Command Parameters

WORD <0255>

Specifies an ASCII string from 0-255 characters.

Default

None

Command Mode

Global Configuration

snmp-server notify-filter

Configure the notify table to select management targets to receive notifications, as well as the type of notification to send to each management target.

Syntax

- **no snmp-server notify-filter WORD<1-32> WORD<1-32>**
- **snmp-server notify-filter WORD<1-32> WORD<1-32>**

Command Parameters

WORD<1-32> WORD<1-32>

The first WORD<1-32> specifies the name of the filter profile.

The second WORD<1-32> identifies the filter subtree OID. If the Subtree OID uses a '+' prefix (or no prefix), this indicates include. The '-' prefix, this indicates exclude.

Default

None

Command Mode

Global Configuration

snmp-server user

Create a user on the local system in the USM table to authorize a user on a particular SNMP engine.

Syntax

- **no snmp-server user WORD<1-32>**
- **snmp-server user WORD<1-32>**

Command Parameters

WORD<1-32>

Specifies the group access name.

Default

None

Command Mode

Global Configuration

snmp-server user WORD<1-32> group

Add a user to a group to logically group users who require the same level of access.

Syntax

- **snmp-server user WORD<1-32> [group WORD<1-32>]**
- **snmp-server user WORD<1-32> [group WORD<1-32>] [md5]**
- **snmp-server user WORD<1-32> [group WORD<1-32>] [md5] [aes | des]**
- **snmp-server user WORD<1-32> [group WORD<1-32>] [sha]**
- **snmp-server user WORD<1-32> [group WORD<1-32>] [sha] [aes | des]**

Command Parameters

group WORD<1-32>

Specifies the group access name.

md5

Specifies an authentication protocol. If no value is entered, no authentication capability exists.

sha

Specifies an authentication protocol. If no value is entered, no authentication capability exists.

aes

Specifies a privacy protocol. If no value is entered, no authentication capability exists.

des

Specifies a privacy protocol. If no value is entered, no authentication capability exists.

Default

None.

Command Mode

Global Configuration

snmp-server user engine-id

Create a new user in the USM table to authorize a user on a particular SNMP engine.

Syntax

- **no snmp-server user engine-id WORD<16-97>**
- **snmp-server user engine-id WORD<16-97>**
- **snmp-server user engine-id WORD<16-97> WORD<1-32>**
- **snmp-server user engine-id WORD<16-97> WORD<1-32> [md5 | sha]**
- **snmp-server user engine-id WORD<16-97> WORD<1-32> [md5] [aes | des]**
- **snmp-server user engine-id WORD<16-97> WORD<1-32> [sha]**
- **snmp-server user engine-id WORD<16-97> WORD<1-32> [sha] [aes | des]**

Command Parameters

md5

Specifies an authentication protocol. If no value is entered, no authentication capability exists.

sha

Specifies an authentication protocol. If no value is entered, no authentication capability exists.

aes

Specifies a privacy protocol. If no value is entered, no authentication capability exists.

des

Specifies a privacy protocol. If no value is entered, no authentication capability exists.

Default

None

Command Mode

Global Configuration

snmp-server user WORD<1-32> md5

Create a user on a remote system with MD5.

Syntax

- **snmp-server user WORD<1-32> md5**
- **snmp-server user WORD<1-32> md5 [aes]**
- **snmp-server user WORD<1-32> md5 [aes] [notify-view WORD<0-32>]**
- **snmp-server user WORD<1-32> md5 [aes] [read-view WORD<0-32>]**
- **snmp-server user WORD<1-32> md5 [aes] [read-view WORD<0-32>] [notify-view WORD<0-32>]**
- **snmp-server user WORD<1-32> md5 [aes] [read-view WORD<0-32>] [write-view WORD<0-32>]**
- **snmp-server user WORD<1-32> md5 [aes] [read-view WORD<0-32>] [write-view WORD<0-32>] [notify-view]**
- **snmp-server user WORD<1-32> md5 [aes] [write-view WORD<0-32>]**
- **snmp-server user WORD<1-32> md5 [aes] [write-view WORD<0-32>] [notify-view WORD<0-32>]**
- **snmp-server user WORD<1-32> md5 [des]**
- **snmp-server user WORD<1-32> md5 [des] [notify-view WORD<0-32>]**
- **snmp-server user WORD<1-32> md5 [des] [read-view WORD<0-32>]**
- **snmp-server user WORD<1-32> md5 [des] [read-view WORD<0-32>] [notify-view WORD<0-32>]**

- **snmp-server user WORD<1-32> md5 [des] [read-view WORD<0-32>] [write-view WORD<0-32>]**
- **snmp-server user WORD<1-32> md5 [des] [read-view WORD<0-32>] [write-view WORD<0-32>] [notify-view WORD<0-32>]**
- **snmp-server user WORD<1-32> md5 [des] [write-view WORD<0-32>]**
- **snmp-server user WORD<1-32> md5 [des] [write-view WORD<0-32>] [notify-view WORD<0-32>]**
- **snmp-server user WORD<1-32> md5 [notify-view WORD<0-32>]**
- **snmp-server user WORD<1-32> md5 [read-view WORD<0-32>]**
- **snmp-server user WORD<1-32> md5 [read-view WORD<0-32>] [notify-view WORD<0-32>]**
- **snmp-server user WORD<1-32> md5 [read-view WORD<0-32>] [write-view WORD<0-32>]**
- **snmp-server user WORD<1-32> md5 [read-view WORD<0-32>] [write-view WORD<0-32>] [notify-view WORD<0-32>]**
- **snmp-server user WORD<1-32> md5 [write-view WORD<0-32>]**
- **snmp-server user WORD<1-32> md5 [write-view WORD<0-32>] [notify-view]**

Command Parameters

md5

Specifies an authentication protocol. If no value is entered, no authentication capability exists.

aes

Specifies a privacy protocol. If no value is entered, no authentication capability exists.

des

Specifies a privacy protocol. If no value is entered, no authentication capability exists.

notify-view WORD<0-32>

Specifies the view name. The first instance is a noAuth view. The second instance is an auth view and the last instance is an authPriv view.

read-view WORD<0-32>

Specifies the view name. The first instance is a noAuth view. The second instance is an auth view and the last instance is an authPriv view.

write-view WORD<0-32>

Specifies the view name. The first instance is a noAuth view. The second instance is an auth view and the last instance is an authPriv view.

Default

None

Command Mode

Global Configuration

snmp-server user WORD<1-32> notify-view

Specify a view name for the created user on the local system in the USM table.

Syntax

- **snmp-server user WORD<1-32> notify-view WORD<0-32>**

Command Parameters

notify-view WORD<0-32>

Specifies the view name. The first instance is a noAuth view. The second instance is an auth view and the last instance is an authPriv view.

Default

None

Command Mode

Global Configuration

snmp-server user WORD<1-32> read-view

Specify a view name for the created user on the local system in the USM table.

Syntax

- **snmp-server user WORD<1-32> [read-view WORD<1-32>]**
- **snmp-server user WORD<1-32> [read-view WORD<1-32>] [notify-view WORD<0-32>]**
- **snmp-server user WORD<1-32> [read-view WORD<0-32>] [write-view WORD<0-32>]**
- **snmp-server user WORD<1-32> [read-view WORD<0-32>] [write-view WORD<0-32>] [notify-view WORD<0-32>]**

Command Parameters

notify-view WORD<0-32>

Specifies the view name. The first instance is a noAuth view. The second instance is an auth view and the last instance is an authPriv view.

read-view WORD<0-32>

Specifies the view name. The first instance is a noAuth view. The second instance is an auth view and the last instance is an authPriv view.

write-view WORD<0-32>

Specifies the view name. The first instance is a noAuth view. The second instance is an auth view and the last instance is an authPriv view.

Default

None

Command Mode

Global Configuration

snmp-server user WORD<1-32> sha

Create a user on a remote system with sha.

Syntax

- **snmp-server user WORD<1-32> sha**
- **snmp-server user WORD<1-32> sha [aes]**
- **snmp-server user WORD<1-32> sha [aes] [notify-view WORD<0-32>]**
- **snmp-server user WORD<1-32> sha [aes] [read-view WORD<0-32>]**
- **snmp-server user WORD<1-32> sha [aes] [read-view WORD<0-32>] [notify-view WORD<0-32>]**
- **snmp-server user WORD<1-32> sha [aes] [read-view WORD<0-32>] [write-view WORD<0-32>]**
- **snmp-server user WORD<1-32> sha [aes] [read-view WORD<0-32>] [write-view WORD<0-32>] [notify-view]**
- **snmp-server user WORD<1-32> sha [aes] [write-view WORD<0-32>]**
- **snmp-server user WORD<1-32> sha [aes] [write-view WORD<0-32>] [notify-view WORD<0-32>]**
- **snmp-server user WORD<1-32> sha [des]**
- **snmp-server user WORD<1-32> sha [des] [notify-view WORD<0-32>]**
- **snmp-server user WORD<1-32> sha [des] [read-view WORD<0-32>]**
- **snmp-server user WORD<1-32> sha [des] [read-view WORD<0-32>] [notify-view WORD<0-32>]**
- **snmp-server user WORD<1-32> sha [des] [read-view WORD<0-32>] [write-view WORD<0-32>]**
- **snmp-server user WORD<1-32> sha [des] [read-view WORD<0-32>] [write-view WORD<0-32>] [notify-view WORD<0-32>]**
- **snmp-server user WORD<1-32> sha [des] [write-view WORD<0-32>]**

- **snmp-server user WORD<1-32> sha [des] [write-view WORD<0-32>] [notify-view WORD<0-32>]**
- **snmp-server user WORD<1-32> sha [notify-view WORD<0-32>]**
- **snmp-server user WORD<1-32> sha [read-view WORD<0-32>]**
- **snmp-server user WORD<1-32> sha [read-view WORD<0-32>] [notify-view WORD<0-32>]**
- **snmp-server user WORD<1-32> sha [read-view WORD<0-32>] [write-view WORD<0-32>]**
- **snmp-server user WORD<1-32> sha [read-view WORD<0-32>] [write-view WORD<0-32>] [notify-view WORD<0-32>]**
- **snmp-server user WORD<1-32> sha [write-view WORD<0-32>]**
- **snmp-server user WORD<1-32> sha [write-view WORD<0-32>] [notify-view]**

Command Parameters

sha

Specifies an authentication protocol. If no value is entered, no authentication capability exists.

aes

Specifies a privacy protocol. If no value is entered, no authentication capability exists.

des

Specifies a privacy protocol. If no value is entered, no authentication capability exists.

notify-view WORD<0-32>

Specifies the view name. The first instance is a noAuth view. The second instance is an auth view and the last instance is an authPriv view.

read-view WORD<0-32>

Specifies the view name. The first instance is a noAuth view. The second instance is an auth view and the last instance is an authPriv view.

write-view WORD<0-32>

Specifies the view name. The first instance is a noAuth view. The second instance is an auth view and the last instance is an authPriv view.

Default

None

Command Mode

Global Configuration

snmp-server user WORD<1-32> write-view

Specify a view name for the created user on the local system in the USM table.

Syntax

- **snmp-server user WORD<1-32> [write-view WORD<0-32>]**
- **snmp-server user WORD<1-32> [write-view WORD<0-32>] [notify-view WORD<0-32>]**

Command Parameters

notify-view WORD<0-32>

Specifies the view name. The first instance is a noAuth view. The second instance is an auth view and the last instance is an authPriv view.

write-view WORD<0-32>

Specifies the view name. The first instance is a noAuth view. The second instance is an auth view and the last instance is an authPriv view.

Default

None

Command Mode

Global Configuration

snmp-server view

Create a new entry in the MIB view table. The default Layer 2 MIB view cannot modify SNMP settings. However, a new MIB view created with Layer 2 permission can modify SNMP settings.

Syntax

- **no snmp-server view WORD<1-32> WORD<1-32>**
- **snmp-server view WORD <1-32> WORD <1-32>**

Command Parameters

WORD <1-32>

Specifies a new entry with this group name. The range is 1-32 characters.

WORD <1-32> WORD<1-32>

Specifies the prefix that defines the set of MIB objects accessible by this SNMP entity. The range is 1-32 characters.

Default

None

Command Mode

Global Configuration

spanning-tree mstp forward-time

Configure the MSTP forward delay for the bridge.

Syntax

- **default spanning-tree mstp forward-time**
- **spanning-tree mstp forward-time <400-3000>**

Command Parameters

<400-3000>

Configures the MSTP forward delay for the bridge, in hundredths of a second.

Default

None

Command Mode

Global Configuration

spanning-tree mstp max-age

Assign the MSTP maximum age time for the bridge

Syntax

- **default spanning-tree mstp max-age**
- **spanning-tree mstp max-age <600-4000>**

Command Parameters

<600-4000>

Assigns the MSTP maximum age time for the bridge, in one hundredths of a second.

Default

The default is 2000.

Command Mode

Global Configuration

spanning-tree mstp max-hop

Assign the maximum hop count for the bridge.

Syntax

- **default spanning-tree mstp max-hop**
- **spanning-tree mstp max-hop <100-4000>**

Command Parameters

<100-4000>

Assigns the MSTP bridge maximum hop count. The range is 100 to 4000 one hundredths of a second.

Default

The default is 2000.

Command Mode

Global Configuration

spanning-tree mstp msti (globally)

Configure Multiple Spanning Tree Protocol (MSTP) to set the MSTP configuration version.

Syntax

- **default spanning-tree mstp msti <1-63>**
- **default spanning-tree mstp msti <1-63> priority**
- **spanning-tree mstp msti <1-63> priority <0-65535>**

Command Parameters

<1-63>

Specifies the instance parameter.

priority <0-65535>

Configures the MSTP bridge priority. Allowed values are:

- 4096
- 8192
- 12288
- 16384
- 20480
- 24576
- 28672
- 32768
- 36864
- 40960
- 45056
- 49152
- 53248
- 57344
- 61440

Default

None

Command Mode

Global Configuration

spanning-tree mstp pathcost-type

Assign the Multiple Spanning Tree Protocol (MSTP) default pathcost version.

Syntax

- **default spanning-tree mstp pathcost-type**
- **spanning-tree mstp pathcost-type bits16**
- **spanning-tree mstp pathcost-type bits32**

Command Parameters

<bits16|bits32>

Specifies the pathcost value.

Default

The default is 32 bits.

Command Mode

Global Configuration

spanning-tree mstp priority (globally)

Assign the Multiple Spanning Tree Protocol (MSTP) bridge priority.

Syntax

- **default spanning-tree mstp priority**
- **spanning-tree mstp priority <0-61440>**

Command Parameters

<0-61440>

Assigns the MSTP bridge priority. The values configured for port priority must be in steps of 4096.

Default

The default is 32768.

Command Mode

Global Configuration

spanning-tree mstp region

Assign the Multiple Spanning Tree Protocol (MSTP) region.

Syntax

- **default spanning-tree mstp region**
- **default spanning-tree mstp region config-id-sel**
- **default spanning-tree mstp region region-name**
- **default spanning-tree mstp region region-version**
- **spanning-tree mstp region config-id-sel <0-255>**
- **spanning-tree mstp region region-name WORD<1-32>**
- **spanning-tree mstp region region-version <0-65535>**

Command Parameters

config-id-sel <0-255>

Assigns the MSTP region configuration ID number.

region-name WORD<1-32>

Assigns the MSTP region name.

region-version <0-65535>

Assigns the MSTP region version.

Default

The default region and version is 0.

Command Mode

Global Configuration

spanning-tree mstp tx-holdcount

Assign the Multiple Spanning Tree Protocol (MSTP) transmit hold count.

Syntax

- **default spanning-tree mstp tx-holdcount**
- **spanning-tree mstp tx-holdcount <1-10>**

Command Parameters

<1-10>

Assigns the MSTP transmit hold count.

Default

The default is 3.

Command Mode

Global Configuration

spanning-tree mstp version

Assigns the bridge version.



Note

You cannot configure the MSTP version when MSTP-Fabric Connect Multi Homing is enabled on the switch.

Syntax

- **default spanning-tree mstp version**
- **spanning-tree mstp version mstp**
- **spanning-tree mstp version rstp**
- **spanning-tree mstp version stp-compatible**

Command Parameters

mstp

Configures the version as MSTP.

rstp

Configures the version as RSTP.

stp-compatible

Configures the version as STP compatible.

Although STP and MSTP are variations of the same spanning tree protocol, they communicate information differently. A switch in MSTI mode cannot recognize the spanning tree groups running on a chassis configured with Nortel STP. MSTP spanning tree groups are not the same as Nortel STP spanning tree groups.

Using a switch in MSTP mode with another chassis in STP mode can create a loop in the network. You must configure protocol migration to true on all spanning-tree enabled interfaces when you change the spanning tree version from STP-compatible to MSTP for those interfaces to work in the proper mode.

Default

The default is MSTP.

Command Mode

Global Configuration

spanning-tree rstp forward-time

Configure the Rapid Spanning Tree Protocol (RSTP) forward delay for the bridge.

Syntax

- **default spanning-tree rstp forward-time**
- **spanning-tree rstp forward-time <400-3000>**

Command Parameters

<400-3000>

Configures the RSTP forward delay for the bridge, in hundredths of a second.

Default

The default is 1500 (15 seconds).

Command Mode

Global Configuration

spanning-tree rstp group-stp enable

Enable or disables Rapid Spanning Tree Protocol (RSTP) for a specific STG.

Syntax

- **default spanning-tree rstp group-stp enable**
- **no spanning-tree rstp group-stp enable**
- **spanning-tree rstp group-stp enable**

Default

The default value is enabled.

Command Mode

Global Configuration

spanning-tree rstp hello-time

Configure the hello-time delay for the bridge.

Syntax

- **default spanning-tree rstp hello-time**
- **spanning-tree rstp hello-time <100-1000>**

Command Parameters

<100-1000>

Configures the hello-time for a port in one hundredths of a second.

Default

The default is 200 (2 seconds).

Command Mode

Global Configuration

spanning-tree rstp max-age

Assign the Rapid Spanning Tree Protocol (RSTP) maximum age time for the bridge

Syntax

- **default spanning-tree rstp max-age**
- **spanning-tree rstp max-age <600-4000>**

Command Parameters

<600-4000>

Assigns the RSTP maximum age time for the bridge, in one hundredths of a second.

Default

The default value is 2000 (2 seconds).

Command Mode

Global Configuration

spanning-tree rstp pathcost-type

Assign the Rapid Spanning Tree Protocol (RSTP) default pathcost version.

Syntax

- **default spanning-tree rstp pathcost-type**
- **spanning-tree rstp pathcost-type bits16**
- **spanning-tree rstp pathcost-type bits32**

Command Parameters

<bits16|bits32>

Specifies the pathcost value.

Default

The default is 32 bits.

Command Mode

Global Configuration

spanning-tree rstp priority (globally)

Assign the Rapid Spanning Tree Protocol (RSTP) bridge priority.

Syntax

- **default spanning-tree rstp priority**
- **spanning-tree rstp priority <0-61440>**

Command Parameters

<0-61440>

Assigns the RSTP bridge priority in a range of 0 to 61440 in steps of 4096.

Default

The default is 32768.

Command Mode

Global Configuration

spanning-tree rstp tx-holdcount

Assign the Rapid Spanning Tree Protocol (RSTP) transmit hold count.

Syntax

- **default spanning-tree rstp tx-holdcount**
- **spanning-tree rstp tx-holdcount <1-10>**

Command Parameters

<1-10>

Assigns the RSTP transmit hold count.

Default

The default is 6.

Command Mode

Global Configuration

spanning-tree rstp version

Configure the Rapid Spanning Tree Protocol (RSTP) to set the RSTP configuration.

Syntax

- **default spanning-tree rstp version**
- **spanning-tree rstp version rstp**
- **spanning-tree rstp version stp-compatible**

Command Parameters

rstp

Configures the version as RSTP.

stp-compatible

Configures the version as STP-compatible.

Default

The default is RSTP.

Command Mode

Global Configuration

spanning-tree tc-receive-alarm-threshold count

Specifies the number of packets used to establish the threshold rate.

Syntax

- **default spanning-tree tc-receive-alarm-threshold count**
- **spanning-tree tc-receive-alarm-threshold count <1-1000>**

Command Parameters

count <1-1000>

Specifies the number of packets used to establish the threshold rate. The default is 2.

Default

The default is 2.

Command Mode

Global Configuration

spanning-tree tc-receive-alarm-threshold interval

Specifies the time interval (in minutes) used to establish the threshold rate.

Syntax

- **default spanning-tree tc-receive-alarm-threshold interval**
- **spanning-tree tc-receive-alarm-threshold interval <1-15>**

Command Parameters

interval <1-15>

Specifies the time interval (in minutes) used to establish the threshold rate. The default is 1.

Default

The default is 1.

Command Mode

Global Configuration

spbm

Enable Shortest Path Bridging MAC (SPBM) globally.

Syntax

- **default spbm**
- **no spbm**
- **spbm**

Default

The default is disabled.

Command Mode

Global Configuration

Usage Guidelines

To ensure proper cleanup of MAC tables after you run the **no spbm** command, save the configuration, and then reboot the switch.

spbm ethertype

Configure the ethertype for Shortest Path Bridging MAC (SPBM).

Syntax

- **default spbm ethertype**
- **spbm ethertype 0x8100**
- **spbm ethertype 0x88a8**

Command Parameters

0x8100

Configures the ethertype to 0x8100.

0x88a8

Configures the ethertype to 0x88a8.

Default

The default is 0x8100.

Command Mode

Global Configuration

spbm nick-name server

Enable a dynamic nickname server.

Syntax

- **no spbm nick-name server**
- **spbm nick-name server**

Default

Disabled

Command Mode

Global Configuration

spbm nick-name server prefix

Configure a nickname allocation prefix.

Syntax

- **default spbm nick-name server prefix**
- **spbm nick-name server prefix x.xx.xx**

Command Parameters

x.xx.xx

Specifies the nickname server allocation prefix. x.xx.xx uses the form X.X0.00 from 0.00.00 to F.F0.00. An interval, X.X0.00 to X.XF.FF, can provide up to 4,000 nicknames.

Default

The default nickname allocation range is A.00.00-A.0F.FF.

Command Mode

Global Configuration

ssh (configuration)

Modify Secure Shell (SSH) configuration parameters to support public and private key encryption connections.

Syntax

- **default ssh**
- **no ssh**
- **ssh**

Default

The default is disabled.

Command Mode

Global Configuration

ssh authentication-type <aead-aes-128-gcm-ssh | aead-aes-256-gcm-ssh | hmac-sha1 |hmac-sha2-256>

Specifies the authentication type.

Syntax

- **default ssh [authentication-type]**
- **no ssh [authentication-type] [authentication-type aead-aes-128-gcm-ssh] [authentication-type aead-aes-256-gcm-ssh] [authentication-type hmac-sha1] [authentication-type hmac-sha2-256]**
- **ssh authentication-type <aead-aes-128-gcm-ssh | aead-aes-256-gcm-ssh | hmac-sha1 |hmac-sha2-256>**

Default

By default, all types are enabled.

Command Mode

Global Configuration

Usage Guidelines

Switch side encryption and authentication type must be configured to the AES-GCM-128/256 methods and needs at least one hmac method in the authentication list for the connection with Open SSH to work.

ssh client

Configures the SSH client parameter.

Syntax

- **default ssh client enable**
- **no ssh client enable**
- **ssh client enable**

Command Parameters

enable

Enables SSH client.

Default

Enabled

Command Mode

Global Configuration

ssh dsa-auth

Enables or disables the DSA authentication.

Syntax

- **default ssh dsa-auth**
- **no ssh dsa-auth**
- **ssh dsa-auth**

Default

The default is enabled.

Command Mode

Global Configuration

ssh dsa-host-key

Generates an SSH DSA host key.

Syntax

- **no ssh dsa-host-key**
- **ssh dsa-host-key [<1024-1024>]**

Command Parameters

<1024-1024>

The range of the host key size is 512 to 1024. The range depends on your hardware.

Default

The default is 1024.

Command Mode

Global Configuration

ssh dsa-user-key WORD<1-15>

Creates the DSA user key file.

Syntax

- **no ssh dsa-user-key WORD<1-15>**
- **ssh dsa-user-key WORD<1-15> [size <1024-1024>]**

Command Parameters

size <1024-1024>]

The default size is 1024 bits. The range depends on your hardware.

WORD<1-15>

WORD<1-15> specifies the user access level. If you configured enhanced secure mode the access levels are: admin|operator|auditor|security|priv.

In enhanced secure mode access level is role based. If you do not enable enhanced secure mode, the valid user access levels are:.

- rwa for read-write-all
- rw for read-write
- ro for read-only
- rwl3 for read-write for Layer 3
- rwl2 for read-write for Layer 2
- rwl1 for Layer 1

Default

None.

Command Mode

Global Configuration

ssh encryption-type

Modify Secure Shell (SSH) configuration parameters to support public and private key encryption connections.

Syntax

- **no ssh encryption-type [3des-cbc] [aead-aes-128-gcm-ssh] [aead-aes-256-gcm-ssh] [aes128-cbc] [aes128-ctr] [aes192-cbc] [aes192-ctr] [aes256-cbc] [aes256-ctr] [blowfish-cbc] [rijndael128-cbc] [rijndael192-cbc]**

- **ssh encryption-type <3des-cbc | aead-aes-128-gcm-ssh | aead-aes-256-gcm-ssh | aes128-cbc | aes128-ctr | aes192-cbc | aes192-ctr | aes256-cbc | aes256-ctr | blowfish-cbc | rijndael128-cbc | rijndael192-cbc>**

Command Parameters

<3des-cbc | aead-aes-128-gcm-ssh | aead-aes-256-gcm-ssh | aes128-cbc | aes128-ctr | aes192-cbc | aes192-ctr | aes256-cbc | aes256-ctr | blowfish-cbc | rijndael128-cbc | rijndael192-cbc>

Specifies the encryption type.

Default

By default, all encryption types are enabled.

If you configure the switch in Enhanced Secure Mode, the following encryption types are disabled by default:

- 3des-cbc
- aes192-cbc
- aes192-ctr
- blowfish-cbc
- rijndael128-cbc
- rijndael192-cbc

Command Mode

Global Configuration

Usage Guidelines

Switch side encryption and authentication type must be configured to the AES-GCM-128/256 methods and needs at least one hmac method in the authentication list for the connection with Open SSH to work.

ssh install-user-key

Import DSA and RSA Private or Public Keys.

Syntax

- **ssh install-user-key WORD<1-15> {rwa | rw | ro | rwl1 | rwl2 | rwl3, enhanced-secured mode : admin | operator | auditor | security | priv } WORD<1-15> {public |private} WORD<1-15> {dsa | rsa}**
- **no ssh install-user-key**

Command Parameters

WORD<1-15> {rwa | rw | ro | rwl1 | rwl2 | rwl3, enhanced-secured mode : admin | operator | auditor | security | priv }

Specifies the user access level.

You must enable SSH globally before you can generate SSH DSA user keys.

If enhanced secure mode is disabled, the valid user access levels for the switch are:

- rwa — Specifies read-write-all.
- rw — Specifies read-write.
- ro — Specifies read-only.
- rwl1 — Specifies read-write for Layer 1.
- rwl2 — Specifies read-write for Layer 2.
- rwl3 — Specifies read-write for Layer 3.

If you enable enhanced secure mode, the switch uses role-based authentication. You associate each user name with a specific role and the appropriate authorization rights to commands based on that role.

If enhanced secure mode is enabled, the valid user access levels for the switch are:

- admin—Specifies a user role with access to all of the configurations, show commands, and the ability to view the log file and security commands. The administrator role is the highest level of user roles.
- operator—Specifies a user role with access to all of the configurations for packet forwarding on Layer 2 and Layer 3, and has access to show commands to view the configuration, but cannot view the audit logs and cannot access security and password commands.
- auditor—Specifies a user role that can view log files and view all configurations, except password configuration.
- security—Specifies a user role with access only to security settings and the ability to view the configurations.
- priv—Specifies a user role with access to all of the commands that the administrator has access to, and is referred to as an emergency-admin. However, the user with the privilege role must be authenticated within the switch locally. RADIUS and TACACS+ authentication is not accessible. A user role at the privilege level must login to the switch through the console port only.

WORD<1-15> {public |private}

Specifies the public key or the private key type to copy from `/intflash/shared` to `/intflash/.ssh`.

WORD<1-15> {dsa | rsa}

Specifies the DSA or RSA signature algorithm for the public key or the private key to copy.

Default

None

Command Mode

Global Configuration

ssh key-exchange-method

Modify Secure Shell (SSH) configuration parameters to support public and private key encryption connections.

Syntax

- **no ssh key-exchange-method [diffie-hellman-group-exchange-sha256] [diffie-hellman-group14-sha1] [diffie-hellman-group14-sha256] [diffie-hellman-group16-sha512] [diffie-hellman-group18-sha512]**
- **ssh key-exchange-method {[diffie-hellman-group-exchange-sha256] [diffie-hellman-group14-sha1] [diffie-hellman-group14-sha256] [diffie-hellman-group16-sha512] [diffie-hellman-group18-sha512]}**

Command Parameters

{[diffie-hellman-group-exchange-sha256] [diffie-hellman-group14-sha1] [diffie-hellman-group14-sha256] [diffie-hellman-group16-sha512] [diffie-hellman-group18-sha512]}

Specifies the key-exchange type.

Default

By default, all types are enabled.

If you configure the switch in Enhanced Secure Mode, the following key exchange methods are disabled by default:

- diffie-hellman-group-exchange-sha256
- diffie-hellman-group14-sha1

Command Mode

Global Configuration

ssh keyboard-interactive-auth

Configures the SSH server to use keyboard-interactive authentication. By default, keyboard-interactive authentication is disabled and the SSH server uses password authentication.

Syntax

- **default ssh keyboard-interactive-auth**
- **no ssh keyboard-interactive-auth**
- **ssh keyboard-interactive-auth**

Default

The default is disabled.

Command Mode

Global Configuration

ssh max-sessions <0-8>

Specifies the maximum number of SSH sessions allowed.

Syntax

- **default ssh max-sessions**
- **ssh max-sessions <0-8>**

Default

The default is 4.

Command Mode

Global Configuration

ssh pass-auth

Enables password authentication.

Syntax

- **default ssh pass-auth**
- **no ssh pass-auth**
- **ssh pass-auth**

Default

The default is enabled.

Command Mode

Global Configuration

ssh port <22, 1024..49151>

Specifies the TCP port number for the Secure Shell (SSH) connection port.

Syntax

- **default ssh port**
- **ssh port <22, 1024..49151>**

Default

The default is 22.

Command Mode

Global Configuration

ssh rekey enable

Forces a key exchange between the SSH server and client, while changing the encryption and integrity keys.

Syntax

- **default ssh rekey enable**
- **no ssh rekey enable**
- **ssh rekey enable**

Default

The default is disabled.

Command Mode

Global Configuration

Usage Guidelines

You cannot enable SSH rekey selectively for the SSH client, SSH server, Secure Copy (SCP), or Secure File Transfer Protocol (SFTP); SSH rekey is enabled for all of these functions simultaneously.

ssh rekey data-limit

Configures SSH rekey data limit in GB.

Syntax

- **default ssh rekey data-limit**
- **ssh rekey data-limit <1-6>**

Command Parameters

<1-6>

Specifies the SSH rekey data limit in GB.

Default

The default is 1 GB.

Command Mode

Global Configuration

ssh rekey time-interval

Sets SSH rekey time interval in hours.

Syntax

- **default ssh rekey time-interval**
- **ssh rekey time-interval <1-6>**

Command Parameters

<1-6>

Specifies the SSH rekey time interval in hours.

Default

The default is 1 hour.

Command Mode

Global Configuration

ssh reset

Resets (bounces) the Secure Shell (SSH) connection.

Syntax

- **ssh reset**

Default

None.

Command Mode

Global Configuration

ssh rsa-auth

Enables RSA authentication.

Syntax

- **default ssh rsa-auth**
- **no ssh rsa-auth**
- **ssh rsa-auth**

Default

The default is enabled.

Command Mode

Global Configuration

ssh rsa-host-key

Generates the SSH RSA host key.

Syntax

- **no ssh rsa-host-key**
- **ssh rsa-host-key [<1024-2048>]**

Command Parameters

<1024-2048>

Specifies the size of the SSH host key. The default is 2048.

Default

None.

Command Mode

Global Configuration

ssh rsa-user-key WORD<1–15>

Generates a new SSH RSA user key.

Syntax

- **no ssh rsa-user-key WORD<1–15>**
- **ssh rsa-user-key WORD<1–15> [size <1024-2048>]**

Command Parameters

size <1024–2048>

Specifies the key size. The default is 2048.

Default

None.

Command Mode

Global Configuration

ssh secure

Enables Secure Shell (SSH) in secure mode and immediately disables non-secure access services.

Syntax

- **default ssh secure**
- **no ssh secure**
- **ssh secure**

Default

The default is disabled.

Command Mode

Global Configuration

Usage Guidelines

After ssh secure is enabled, you can choose to enable individual non-secure protocols. However, after you save the configuration and restart the system, the non-secure protocol is again disabled, even though it is shown as enabled in the configuration file.

After you enable ssh secure, you cannot enable non-secure protocols by disabling ssh secure.

ssh sftp

SSH is enabled when SFTP is disabled.

Syntax

- **default ssh sftp**
- **no ssh sftp enable**
- **ssh sftp enable**

Command Parameters

enable

Enables or disables ssh sftp. The default is enabled.

Default

The default is enabled.

Command Mode

Global Configuration

ssh timeout <1-120>

Specifies the Secure Shell (SSH) connection authentication timeout in seconds.

Syntax

- **default ssh timeout**
- **ssh timeout <1-120>**

Default

The default is 60 seconds.

Command Mode

Global Configuration

ssh version v2only

Specifies the Secure Shell (SSH) version.

Syntax

- **default ssh version**
- **ssh version v2only**

Default

The default is v2only.

Command Mode

Global Configuration

ssh x509v3-auth ca-name

Configure the X.509 V3 Certificate Authority trustpoint.

Syntax

- **ssh x509v3-auth ca-name WORD<1-45>**
- **no ssh x509v3-auth ca-name WORD<1-45>**

Command Parameters

WORD<1-45>

Specifies the name of the X.509 V3 Certificate Authority trustpoint.

Default

None

Command Mode

Global Configuration Mode

ssh x509v3-auth cert-subject-name

Configure the X.509 V3 digital certificate subject name to be used as the identity certificate.

Syntax

- **ssh x509v3-auth cert-subject-name WORD<1-45>**
- **no ssh x509v3-auth cert-subject-name WORD<1-45>**

Command Parameters

WORD<1-45>

Specifies the digital certificate subject name to be used as the identity certificate.

Default

None

Command Mode

Global Configuration Mode

ssh x509v3-auth enable

Specifies the Secure Shell (SSH) X.509 V3 authentication configuration for Two-Factor Authentication.

Syntax

- **default ssh x509v3-auth enable**
- **no ssh x509v3-auth enable**
- **ssh x509v3-auth enable**

Default

The default is enabled.

Command Mode

Global Configuration

ssh x509v3-auth revocation-check-method

Specifies the Secure Shell (SSH) X.509 V3 authentication configuration for Two-Factor Authentication.

Syntax

- **default ssh x509v3-auth revocation-check-method**
- **ssh x509v3-auth revocation-check-method <none | ocsp>**

Default

The default is OCSP.

Command Mode

Global Configuration

ssh x509v3-auth username

Specifies the Secure Shell (SSH) X.509 V3 authentication configuration for Two-Factor Authentication.

Syntax

- **default ssh x509v3-auth username <overwrite | strip-domain | use-domain>**
- **no ssh x509v3-auth username <overwrite | strip-domain | use-domain>**
- **ssh x509v3-auth username <overwrite | strip-domain | use-domain WORD<1-254>>**

Command Parameters

overwrite

Enables SSH x509 user name overwrite. The default is disabled.

strip-domain

Enable SSH x509 user name strip-domain. The default is disabled.

use-domain WORD<1-254>

Specifies the SSH x509 user name domain.

Default

None.

Command Mode

Global Configuration

ssl certificate

Create and install a new self-signed SSL server certificate.

Syntax

- **ssl certificate**
- **ssl certificate validity-period-in-days <30-3650>**

Command Parameters

validity-period-in-days <30-3650>

Number of days for which the certificate remains valid.

Default

The default is 365.

Command Mode

Global Configuration

ssl reset

Install current SSL server certificate.

Syntax

- **ssl reset**

Command Parameters

reset

Install current SSL server certificate; if missing, create and install a new self-signed certificate.

Default

None

Command Mode

Global Configuration

sys control

Configure Linux system control TCP timestamp and TCP keepalive parameters.

Syntax

- **default sys control tcp-keepalive-interval**
- **default sys control tcp-keepalive-probes**
- **default sys control tcp-keepalive-time**
- **default sys control tcp-timestamp**
- **sys control tcp-keepalive-interval <1-3600>**
- **sys control tcp-keepalive-probles <1-50>**
- **sys control tcp-keepalive-time <5-65535>**
- **sys control tcp-timestamp**
- **no sys control tcp-timestamp**

Command Parameters

tcp-keepalive-interval <1-3600>

Configures the TCP keepalive interval. <1-3600> is the keepalive interval value in seconds.

tcp-keepalive-probes <1-50>

Configures the TCP keepalive probes. <1-50> is the number of keepalive probes.

tcp-keepalive-time <5-65535>

Configures the TCP keepalive time. <5-65535> is the keepalive time in seconds.

tcp-timestamp

Enables or disables the TCP timestamp.

Default

The TCP timestamp default is enabled. You can disable tcp timestamp with the command **no sys control tcp-timestamp**. The system displays the following warning message when a new configuration is applied:

```
Warning: Existing TCP connections won't be affected. A config save and
reboot is required to apply this configuration for all TCP connections.
```

The TCP keepalive interval default is 10.

The TCP keepalive time default is 60.

The TCP keepalive probes default is 5.

Command Mode

Global Configuration

sys control virtual-ist

Enable MAC move protection on virtual interswitch trunk (vIST).

Syntax

- **sys control virtual-ist mac-move-protection**
- **no sys control virtual-ist mac-move-protection**

Command Parameters

mac-move-protection

Enables or disabled MAC move protection on vIST.

Default

The default value is enabled.

Command Mode

Global Configuration

sys default-ping-context

Configure the default context for executing **ping** commands and **traceroute** commands.

Syntax

- **sys default-ping-context grt**
- **sys default-ping-context mgmt**
- **sys default-ping-context vrf WORD<1-64>**

Command Parameters

grt

Specifies the Global Router (grt) context as the default context for **ping** commands and **traceroute** commands.

mgmt

Specifies the management (mgmt) context as the default context for **ping** commands and **traceroute** commands.

vrf

Specifies the Virtual Router Forwarding (vrf) context as the default context for **ping** commands and **traceroute** commands.

WORD<1-64>

Specifies the vrf name.

Default

The default context is grt.

Command Mode

Global Configuration

sys fan set-min-speed <20-100>

Configures the fan speed as a percentage between the minimum (20%) and maximum (100%) speed imposed by the platform design. This command configures the minimum speed at which the fan operates.

Syntax

- **default sys fan set-min-speed**
- **sys fan set-min-speed <20-100>**

Default

The default is 20.

Command Mode

Global Configuration

Usage Guidelines

This command only applies to 5720 Series.

The switch monitors temperature sensors every 15 seconds. If the temperature exceeds the threshold, the fan speed increases.

If you change the minimum fan speed value, the switch can take up to 15 seconds to read the temperature sensors and then change the fan speed. If you lower the minimum fan speed by more than 20%, the switch decreases the speed by 20% every 15 seconds.

Important

Increasing the fan speed can also increase the fan noise.

sys force-msg

Use the force message control option after you enable the message control feature. Force message control stops sending the log messages starting with a configured pattern. This happens regardless if message control parameters (control interval or maximum message number) are accomplished. The action to suppress the message, send a trap notification, or both, is indicated by system message control.

Syntax

- **no sys force-msg WORD<4-4>**
- **sys force-msg WORD<4-4>**

Command Parameters

WORD<4-4>

Adds a forced message control pattern.

WORD<4-4> is a string of 4 characters. You can add a four-byte pattern into the force-msg table. The software and the hardware log messages that use the first four bytes matching one of the patterns in the force-msg table undergo the configured message control action.

You can specify up to 32 different patterns in the force-msg table, including a wildcard pattern (****). If you specify the wildcard pattern, all messages undergo message control.

Default

None

Command Mode

Global Configuration

sys locator-led

Enable or disable the switch Locator LED.

Syntax

- **no sys locator-led**
- **sys locator-led**

Default

The default is off.

Command Mode

Global Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine User Guide*.

sys lrm-adapter-upgrade <0-32>

Upgrades the internal PHY firmware for the LRM/MACsec adapter.

Syntax

- **sys lrm-adapter-upgrade <0-32>**

Command Parameters

<0-32>

Specifies the adapter ID. After you connect the adapter, the adapter ID displays in a log message that indicates you must perform a firmware upgrade. You can also find the adapter ID in the output of show sys lrm-adapter on page 1787.

Default

None.

Command Mode

Global Configuration

Usage Guidelines

Only 5720-VIM-6YE supports this adapter.

For more information about the adapter, see Two-Port External LRM/MACsec Adapter.

sys msg-control

Configure system message control to suppress duplicate error messages on the console and to determine the action to take if they occur.

To enable the message control feature, you must specify an action, control interval, and maximum message number. After you enable the feature, the log messages, which get repeated and cross the maximum message number in the control interval, trigger the force message feature. You can either suppress the message or send a trap notification, or both.

Syntax

- **default sys msg-control**
- **default sys msg-control action**
- **default sys msg-control control-interval**
- **default sys msg-control max-msg-num**
- **no sys msg-control**
- **sys msg-control**
- **sys msg-control action both**
- **sys msg-control action send-trap**
- **sys msg-control action suppress-msg**
- **sys msg-control control-interval <1-30>**
- **sys msg-control max-msg-num <2-500>**

Command Parameters

action <both|send-trap| suppress-msg>

Configures the message control action. You can either suppress the message or send a trap notification, or both. The default is suppress-msg.

control-interval <1-30>

Configures the message control interval in minutes. The default control-interval is 5.

max-msg-num <2-500>

Configures the number of occurrences of a message after which the control action occurs. The default is 5 messages.

Default

None

Command Mode

Global Configuration

sys mtu

Configure support for jumbo frames on the switch.

Syntax

- **default sys mtu**
- **sys mtu <sys-mtu>**

Command Parameters

<sys-mtu>

Specifies the Jumbo frame size for the data path. Different hardware platforms support different MTU sizes. Use the CLI Help to see the available range for the switch.

Default

The default value is 1950 bytes.

Command Mode

Global Configuration

sys name

Configure system identification to specify the name of the switch.

Syntax

- **default sys name**
- **sys name WORD<0-255>**

Command Parameters

name WORD<0-255>

Configures the system or root level prompt name for the switch. WORD<0-255> is an ASCII string from 1-255 characters (for example, LabSC7 or Closet4).

Default

The default differs depending on hardware platform.

Command Mode

Global Configuration

sys priv-exec-password

Enable authentication for the Privileged EXEC command mode for enhanced security.

Syntax

- **sys priv-exec-password**
- **no sys priv-exec-password**

- **default sys priv-exec-password**

Default

The default is disabled.

Command Mode

Global Configuration

Usage Guidelines

When you enable authentication for the Privileged EXEC CLI command mode, the changes do not affect any CLI sessions that are currently open. For the changes to take effect, you must first log out from your current CLI session and log back in on a new session.

sys power slot

Configures power for the VIM slot.

Syntax

- **sys power slot** *{slot[-slot][,...]}*
- **no sys power slot** *{slot[-slot][,...]}*

Command Parameters

{slot[-slot][,...]}

Specifies the slot number.

The valid range is 2-3 on 7830 Series.

Default

None

Command Mode

Global Configuration

Usage Guidelines

This command applies to 7830 Series only.

sys security-console

Configure the serial management ports to drop a connection that is interrupted for any reason. If you enable serial port dropping, the serial management ports drop the connection for the following reasons: modem power failure, link disconnection, and loss of the carrier.

Serial ports interrupted due to link disconnection, power failure, or other reasons force out the user and end the user session. Ending the user session ensures a maintenance port is not available with an active session that can allow unauthorized use by someone other than the authenticated user, and prevents the physical hijacking of an active session by unplugging the connected cable and plugging in another.

Syntax

- **sys security-console**

Default

The default is disabled if enhanced secure mode is disabled. The default is enabled if enhanced secure mode is enabled.

Command Mode

Global Configuration

sys software auto-commit

Enable the auto-commit feature for software upgrades.

If you enable the auto-commit option, the system automatically commits to the new software version after the commit timer expires.

If you do not enable the auto-commit option, you must enter the software commit command before the commit timer expires to commit the new software version otherwise the system restarts automatically to the previous (committed) version.

Syntax

- **default sys software auto-commit enable**
- **no sys software auto-commit enable**
- **sys software auto-commit enable**

Default

The default is enabled.

Command Mode

Global Configuration

sys software commit-time <1-60>

Configure the commit feature for software upgrades to allows maximum time to ensure that the upgrade is successful. You must enter the software commit command before the commit timer expires to commit the new software version otherwise the system restarts automatically to the previous (committed) version.

Syntax

- **default sys software commit-time**
- **sys software commit-time <1-60>**

Default

The default is 10 minutes.

Command Mode

Global Configuration

sys system-default

Note
This command is deprecated.

The following is an example of a log message that displays if you enter this command:

```
WARNING: The “sys-default” command has been deprecated. Please use the
“boot config flags factorydefaults” command instead
```

Reset the switch to the default passwords and configuration.

Note
You can only access this command after you enable enhanced secure mode using the boot config flags enhancedsecure-mode command. Only the user with the administrator role can use the command. After the administrator issues the command, the administrator must reboot the switch.

Syntax

- **sys system-default**

Default

None

Command Mode

Global Configuration

sys usb disable

Disable the USB drive.

Note
You can only access this command after you enable enhanced secure mode using the boot config flags enhancedsecure-mode command. Only the user with the administrator role can use the command. After the administrator issues the command, the administrator must reboot the switch.

Syntax

- **default sys usb disable**
- **no sys usb disable**
- **sys usb disable**

Default

None

Command Mode

Global Configuration

sys usb enable

Enable the USB drive.

Note
You can only access this command after you enable enhanced secure mode using the boot config flags enhancedsecure-mode command. Only the user with the administrator role can use the command. After the administrator issues the command, the administrator must reboot the switch.

Syntax

- **default sys usb enable**
- **no usb enable**

- **sys usb enable**

Default

None

Command Mode

Global Configuration

sys vim-speed

Configure all of the ports on an installed Versatile Interface Module (VIM) to operate at the same speed.

Note
This command is not supported on all VIMs. Some VIMs must operate with all ports at the same speed, or with a group of ports at the same speed, while others can operate with ports at different speeds. For more information, see *Fabric Engine Release Notes*.

Syntax

- **default sys vim-speed**
- **sys vim-speed {1000 | 10000 | 25000 | auto}**

Command Parameters

{1000 | 10000 | 25000 | auto}

Configures all VIM ports to operate at either 1 Gbps, 10 Gbps, 25 Gbps, or auto.

It is a best practice not to use a mix of 10Gbps and 25Gbps VIMs with the auto parameter.

Default

The default is 25 Gbps.

Command Mode

Global Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine User Guide*.

The command **auto vim-speed** is enabled by default.

1 Gbps port speed is supported on 5720-VIM-6YE only.

If 5720-VIM-6YE uses the LRM/MACsec Adapter, you must configure the groups according to the SFP or SFP+ inserted in the Adapter.

sys vim-speed group

Configure all of the ports on an installed Versatile Interface Module (VIM) into two speed setting groups.

This command is not supported on all VIMs. Some VIMs must operate with all ports at the same speed, or with a group of ports at the same speed, while others can operate with ports at different speeds. For more information, see *Fabric Engine Release Notes*.

Syntax

- **sys vim-speed group <1-2> {1000 | 10000| 25000}**

Command Parameters

<1-2>

Configures all ports into two speed setting groups. Ports in groups must be configured to operate at the same speed.

- group 1: ports 2/1, 2/2, 2/3
- group 2: ports 2/4, 2/5, 2/6

{1000 | 10000| 25000}

Configures all VIM ports to operate at either 1 Gbps, 10 Gbps, or 25 Gbps. The default is 25 Gbps.

Default

The default is 25 Gbps.

Command Mode

Global Configuration

Usage Guidelines

This command only applies to 5720-VIM-6YE.

syslog certificate ca-common-name WORD<1-45>

Configure the Certificate Authority trustpoint for the syslog server.

Syntax

- **syslog certificate ca-common-name WORD<1-45>**
- **no syslog certificate ca-common-name WORD<1-45>**

Command Parameters

WORD<1-45>

Specifies the Certificate Authority common name.

Default

None

Command Mode

Global Configuration Mode

syslog enable

The syslog commands enable or disable sending the logging message to remote syslog server.

Syntax

- **default syslog enable**
- **no syslog enable**
- **syslog enable**

Command Parameters

enable

Enables the sending of syslog messages on the switch.

Default

The default is disabled.

Command Mode

Global Configuration

syslog host

Configure the syslog host and related parameters for sending the logging the message.

Syntax

- **default syslog host <1-10>**
- **default syslog host <1-10> enable**
- **default syslog host <1-10> facility**
- **default syslog host <1-10> maperror**
- **default syslog host <1-10> mapfatal**
- **default syslog host <1-10> mapinfo**
- **default syslog host <1-10> mapwarning**
- **default syslog host <1-10> severity**
- **default syslog host <1-10> udp-port**
- **default syslog host <1-10>**
- **default syslog host <1-10> secure-forwarding mode**
- **default syslog host <1-10> secure-forwarding tcp-port**
- **no syslog host <1-10>**
- **no syslog host <1-10> enable**
- **no syslog host <1-10> secure-forwarding mode tls server-cert-nam**
- **syslog host <1-10>**
- **syslog host <1-10> address WORD<0-46>**
- **syslog host <1-10> enable**
- **syslog host <1-10> facility { local0 | local1 | local2 | local3 | local4 | local5 | local6 | local7 }**
- **syslog host <1-10> maperror { emergency | alert | critical | error | warning | notice | info | debug }**
- **syslog host <1-10> mapfatal { emergency | alert | critical | error | warning | notice | info | debug }**
- **syslog host <1-10> mapinfo { emergency | alert | critical | error | warning | notice | info | debug }**
- **syslog host <1-10> mapwarning { emergency | alert | critical | error | warning | notice | info | debug }**
- **syslog host <1-10> secure-forwarding mode none**
- **syslog host <1-10> secure-forwarding mode tls server-cert-name WORD<1-64>**
- **syslog host <1-10> severity { info | warning | error | fatal }**
- **syslog host <1-10> severity { info | warning | error | fatal } { info | warning | error | fatal }**
- **syslog host <1-10> severity { info | warning | error | fatal } { info | warning | error | fatal } { info | warning | error | fatal }**

- **syslog host <1-10> severity { info | warning | error | fatal } { info | warning | error | fatal } { info | warning | error | fatal } { info | warning | error | fatal }**
- **syslog host <1-10> udp-port <514-530>**
- **syslog host <1-10> secure-forwarding tcp-port <1025–49151>**

Command Parameters

address WORD<0-46>

Configures a host location for the syslog host. WORD<0-46> is the IP address of the UNIX system syslog host.

enable

Enables the syslog host.

facility {local0|local1|local2|local3|local4|local5|local6|local7}

Specifies the UNIX facility used in messages to the syslog host. {local0|local1|local2|local3|local4|local5|local6|local7} is the UNIX system syslog host facility (LOCAL0 to LOCAL7).

host

Specifies host settings.

maperror {emergency|alert|critical|error|warning|notice|info|debug}

Specifies the syslog severity to use for Error messages.

mapfatal {emergency|alert|critical|error|warning|notice|info|debug}

Specifies the syslog severity to use for Fatal messages.

mapinfo {emergency|alert|critical|error|warning|notice|info|debug}

Specifies the syslog severity level to use for Information messages.

mapwarning {emergency|alert|critical|error|warning|notice|info|debug}

Specifies the syslog severity to use for Warning messages.

secure-forwarding mode {none | tls server-certname WORD<1-64>}

Specifies the mode of secure forwarding of syslog on the host. The default mode is none, that is, tls mode is disabled by default.

secure-forwarding tcp-port <1025–49151>

Set the tcp-port for secure forwarding of syslog for host. The default tcp-port is 1025. The tcp-port 6000 cannot be used, as it is used as an internal port for Internal Spanning Tree (IST).

severity <info|warning|error|fatal>

Specifies the severity levels for which syslog messages should be sent for the specified modules.

udp-port <514-530>

Specifies the UDP port number on which to send syslog messages to the syslog host. This is the UNIX system syslog host port number (514 to 530).

Default

None

Command Mode

Global Configuration

syslog max-hosts <1-10>

Specify the maximum number of syslog hosts supported.

Syntax

- **default syslog max-hosts**
- **syslog max-hosts <1-10>**

Default

The default is 5.

Command Mode

Global Configuration

syslog tls-min-ver

Configure the minimum version of TLS protocol supported by the syslog client.

Syntax

- **syslog tls-min-ver {tlsv11 | tlsv12}**
- **default syslog tls-min-ver**

Command Parameters

tlsver11 | tlsv12

Specifies the minimum version of the TLS protocol supported by the syslog client.

- tlsv11 - configures version 1.1
- tlsv12 - configures version 1.2

Default

If the switch operates in Enhanced Secure Mode, the default TLS minimum version for Syslog is tlsv12. Otherwise, the default is tlsv11.

Command Mode

Global Configuration Mode

tacacs accounting

Determines for which applications TACACS+ collects accounting information. Use TACACS+ accounting to track the services that users access and the amount of network resources that users consume.

Syntax

- **default tacacs accounting cli**
- **no tacacs accounting cli**
- **tacacs accounting disable**
- **tacacs accounting disable cli**
- **tacacs accounting enable cli**

Command Parameters

cli

Specifies the command line as the application.

disable

Disables the accounting function for the specified application.

enable

Enables the accounting function for the specified application.

Default

None. If unassigned, TACACS+ does not perform the accounting function.

Command Mode

Global Configuration

tacacs authentication

Determines which applications TACACS+ authenticates.

Syntax

- **default tacacs authentication all**
- **default tacacs authentication cli**
- **default tacacs authentication web**
- **no tacacs authentication all**

- **no tacacs authentication cli**
- **no tacacs authentication web**
- **tacacs authentication all**
- **tacacs authentication cli**
- **tacacs authentication web**

Command Parameters

all

TACACS+ authenticates all applications.

cli

TACACS+ authenticates command line connections.

web

TACACS+ authenticates web connections.

Default

The default value is cli.

Command Mode

Global Configuration

tacacs authorization

Enables command authorization for a particular privilege level. Use this option to limit the use of certain commands to different users. To use TACACS+ authorization, you must also use TACACS+ authentication.

Syntax

- **default tacacs authorization**
- **no tacacs authorization enable**
- **no tacacs authorization level <1-6>**
- **tacacs authorization disable**
- **tacacs authorization enable**
- **tacacs authorization level <1-6>**
- **tacacs authorization level all**
- **tacacs authorization level none**

Command Parameters

disable

Disables command authorization.

enable

Enables command authorization.

level <1-6>

Enables command authorization for a specific privilege level.

level all

Enables command authorization for all privilege levels.

level none

Disables command authorization for all privilege levels.

Default

The default is disabled.

Command Mode

Global Configuration

tacacs protocol enable

Globally enables or disables TACACS+.

Syntax

- **default tacacs protocol enable**
- **no tacacs protocol enable**
- **tacacs protocol enable**

Default

The default is disabled.

Command Mode

Global Configuration

tacacs server host

Configures the entry for the primary TACACS+ server.

Syntax

- **default tacacs server {A.B.C.D}**
- **default tacacs server {A.B.C.D} port**

- **default tacacs server {A.B.C.D} single-connection**
- **default tacacs server {A.B.C.D} timeout**
- **no tacacs server {A.B.C.D}**
- **no tacacs server {A.B.C.D} single-connection**
- **tacacs server host {A.B.C.D}**
- **tacacs server host {A.B.C.D} key WORD<0-128>**
- **tacacs server host {A.B.C.D} port <1-65535>**
- **tacacs server host {A.B.C.D} single-connection**
- **tacacs server host {A.B.C.D} timeout <10-30>**

Command Parameters

{A.B.C.D}

Specifies the IP address of the primary TACACS+ server.

Key WORD<0-128>

Configures the secret key to share with this TACACS+ server. If the key length is zero, that indicates no encryption is used.

port <1-65535>

Configures the TCP port on which the client establishes a connection to the server. A value of 0 indicates that the system specified default value is used. The default is 49.

single-connection

Specifies if the TCP connection between the device and the TACACS+ server is a single connection. If you do not enable the single-connection parameter, the system uses the default connection type that opens and closes a connection for each communication session.

timeout <10-30>

Configures the maximum time, in seconds, to wait for this TACACS+ server to reply. The default is 10 seconds.

Default

None

Command Mode

Global Configuration

tacacs server secondary-host

Configures the entry for the secondary TACACS+ server.

Syntax

- **default tacacs server {A.B.C.D}**
- **default tacacs server {A.B.C.D} port**
- **default tacacs server {A.B.C.D} single-connection**
- **default tacacs server {A.B.C.D} timeout**
- **no tacacs server {A.B.C.D}**
- **no tacacs server {A.B.C.D} single-connection**
- **tacacs server secondary-host {A.B.C.D}**
- **tacacs server secondary-host {A.B.C.D} key WORD<0-128>**
- **tacacs server secondary-host {A.B.C.D} port <1-65535>**
- **tacacs server secondary-host {A.B.C.D} single-connection**
- **tacacs server secondary-host {A.B.C.D} timeout <10-30>**

Command Parameters

{A.B.C.D}

Specifies the IP address of the secondary TACACS+ server.

key WORD<0-128>

Configures the secret key to share with this TACACS+ server. If the key length is zero, that indicates no encryption is used.

port <1-65535>

Configures the TCP port on which the client establishes a connection to the server. A value of 0 indicates that the system specified default value is used. The default is 49.

single-connection

Specifies if the TCP connection between the device and the TACACS+ server is a single conection. If you do not enable the single-connection parameter, the system uses the default connection type that opens and closes a connection for each communication session.

timeout <10-30>

Configures the maximum time, in seconds, to wait for this TACACS+ server to reply. The default is 10 seconds.

Default

None

Command Mode

Global Configuration

telnet-access sessions

Configures the number of supported inbound Telnet sessions.

Syntax

- **default telnet-access sessions**
- **telnet-access sessions <0-8>**

Command Parameters

<0-8>

Configures the allowable number of inbound Telnet sessions.

Default

The default is 8.

Command Mode

Global Configuration

udp checksum

Enable the User Datagram Protocol (UDP) checksum calculation on the switch.

Syntax

- **default udp checksum**
- **no udp checksum**
- **udp checksum**

Default

The default is enabled.

Command Mode

Global Configuration

unconfigure switch

Boots the switch with a factory default configuration.

Equivalent to a switch that ships from the factory. The switch has no configuration files, default user accounts, default security mode, Auto-sense-enabled ports, and performs a

ZTP+ configuration after reboot. The 30-day factory license is also reset. If required, you must revoke the license file. The 30-day factory license does not apply to 4220 Series.

This command performs the same action as the **boot config flags factorydefaults reset-all-files** command.

Syntax

- **unconfigure switch**
- **no boot config flags factorydefaults**

Default

The default is disabled.

Command Mode

Global Configuration

Usage Guidelines

This flag resets to the default value after the CPU restarts. If you change this flag, you must restart the switch.

username

Changes or creates a user profile.

Syntax

- **default username WORD<1-20> level <l1 | l2 | l3 | ro | rw | rwa>**
- **no username WORD<1-20> [enable]**
- **username add WORD<1-20> level <ro | rw | rwa> enable**
- **username WORD<1-20> enable**
- **username WORD<1-20> level <l1 | l2 | l3 | ro | rw | rwa>**

Command Parameters

WORD<1-20>

Specifies the user name. User names support the following character types:

- alphanumeric
- hyphen (-)
- underscore (_)

add

Creates a user account.

enable

Enables the user name on the switch.

level

Specifies the level assigned to the user:

- l1—Layer 1 read/write access level
- l2—Layer 2 read/write access level
- l3—Layer 3 read/write access level
- ro—Read-only access level
- rw—Read/write access level
- rwa—Read/write/all access level

Default

None

Command Mode

Global Configuration

virtual-ist

Virtual interswitch trunk (VIST) improves upon the Layer 2 and Layer 3 resiliency by using a virtualized IST channel through the SPBM cloud.

Syntax

- **default virtual-ist peer-ip**
- **no virtual-ist peer-ip**
- **virtual-ist peer-ip {A.B.C.D} vlan <1-4059>**

Command Parameters

peer-ip {A.B.C.D}

Specifies the peer IP address—the IP address of the IST VLAN on the other aggregation switch.

vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

Global Configuration

virtual-service (globally)

Configures virtual service on the switch.

Syntax

- **default virtual-service WORD<1-128> mem-size**
- **default virtual-service WORD<1-128> num-cores**
- **no virtual-service WORD<1-128> disk WORD<1-32>**
- **no virtual-service WORD<1-128> enable**
- **no virtual-service WORD<1-128> vport WORD<1-32> connect-type**
- **no virtual-service WORD<1-128> vport WORD<1-32> vlan <1-4096>**
- **virtual-service WORD<1-128> disk WORD<1-32> size <1-30>**
- **virtual-service WORD<1-128> enable**
- **virtual-service WORD<1-128> mem-size <1-50000>**
- **virtual-service WORD<1-128> num-cores <1-6>**
- **virtual-service WORD<1-128> vport WORD<1-32>**
- **virtual-service WORD<1-128> vport WORD<1-32> connect-type {ovs | sriov | vtd}**
- **virtual-service WORD<1-128> vport WORD<1-32> port WORD<1-32>**
- **virtual-service WORD<1-128> vport WORD<1-32> port WORD<1-32> nic-type [virtio | e1000]**
- **default virtual-service WORD<1-128> vport WORD<1-32> port WORD<1-32> nic-type**
- **virtual-service WORD<1-128> vport WORD<1-32> vlan <1-4096>**

Command Parameters

connect-type {ovs | sriov | vtd}

Specifies the connection type for the virtual port created. The default is VT-d. The switch supports the following maximums for virtual ports:

- Open vSwitch (OVS) - 16
- Single Root Input/Output Virtualization (SR-IOV) - 16
- Virtualization Technology for Directed Input/Output (VT-d) - 2

disk WORD<1-32>

Specifies the disk assigned to the virtual service.

enable

Enables the virtual service.

mem-size <1-50000>

Specifies the memory size in Megabytes assigned to the virtual service. The default value is 1024 Megabytes.

nic-type [virtio | e1000]

Specifies the Virtual Port NIC type. The default is e1000.



Note

Configure this value only when the **connect-type** parameter is `ovs`.

num-cores <1-6>

Specifies the number of cores assigned to the virtual service. The default value is 1.

port<1-32>

Specifies the name of the IAH port associated with the virtual port. Depending on hardware. the switch can support the following IAH ports:

- 1/s1
- 1/s2

size <1-30>

Specifies the size of the disk in Gigabytes.

vlan <1-4096>

Specifies the VLAN ID used by the virtual port.

vport WORD<1-32>

Specifies the name of the virtual port.

WORD<1-128>

Specifies the virtual service name.

Default

None

Command Mode

Global Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

virtual-service WORD<1-128> change-user-pass WORD<1-20>

Changes the password for a VM user.

Syntax

- **virtual-service WORD<1-128> change-user-pass WORD<1-20>**

Command Parameters

WORD<1-20>

Specifies the user name.

WORD<1-128>

Specifies the virtual service name.

Default

None.

Command Mode

Global Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

The password must be greater than, or equal to, 8 characters.

virtual-service WORD<1-128> exec-command WORD<1-256>

Runs the **ls** command for the VM `config` directory from the network operating system (NOS) CLI.

Syntax

- **virtual-service WORD<1-128> exec-command WORD<1-256>**

Command Parameters

WORD<1-256>

Specifies the VM command to run. To include spaces in the syntax, include the text string in quotation marks (").

WORD<1-128>

Specifies the virtual service name.

Default

None.

Command Mode

Global Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

virtual-service WORD<1-128> figw-cli WORD<1-256>

Runs a Fabric IPsec Gateway command from the network operating system (NOS) CLI.

Syntax

- **virtual-service WORD<1-128> figw-cli WORD<1-256>**

Command Parameters

WORD<1-256>

Specifies the VM command to run. To include spaces in the syntax, include the text string in quotation marks (").

WORD<1-128>

Specifies the virtual service name.

Default

None.

Command Mode

Global Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

vlacp enable

Enable or disable the Virtual Link Aggregation Control Protocol (VLACP) globally to reset all port level settings on the chassis.

Syntax

- **default vlacp enable**
- **default vlacp enable**
- **no vlacp enable**
- **vlacp enable**

Command Parameters

enable

Enables the VLACP globally.

Default

None

Command Mode

Global Configuration

vlan action

Perform a general VLAN action to initiate a specific function on a VLAN, such as clearing learned MAC addresses or ARP entries from the forwarding database.

Syntax

- **vlan action <1-4059> { none | flushMacFdb | flushArp | flushIp | flushDynMemb | triggerRipUpdate | all }**

Command Parameters

all

Sets action to all.

flushArp

Flush ARP tables for a VLAN.

flushDynMemb

Flush dynamic port members from the active port-members list on a policy-based VLAN. This command also removes the MAC addressess learned on those ports for the VLAN.

flushIp

Flush IP Routing tables.

flushMacFdb

Flush the MAC FDB.

none

Sets action to none.

triggerRipUpdate

Sets action to triggerRipUpdate.

Default

None

Command Mode

Global Configuration

vlan agetime

Configure the agetime for dynamic VLAN membership.

Syntax

- **default vlan agetime <2-4059>**
- **vlan agetime <2-4059> <0-1000000>**

Command Parameters

<0-1000000>

Specifies the agetime, in seconds.

<2-4059>

Specifies the VLAN ID in the range of 2 to 4059. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1. By default, the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998.

Default

The default is 600 seconds.

Command Mode

Global Configuration

vlan create

Create a VLAN by port, protocol, or SPBM. Optionally, you can choose to assign the VLAN a name and color. VLANs 4060-4094 are used internally. Create a VLAN with a value between 2 and 4059.

Syntax

- **vlan create <2-4059> name WORD<0-64> type port-mstprstp <0-63>**
- **vlan create <2-4059> name WORD<0-64> type port-mstprstp <0-63> color <0-32>**
- **vlan create <2-4059> name WORD<0-64> type protocol-mstprstp <0-63> ipv6**
- **vlan create <2-4059> name WORD<0-64> type protocol-mstprstp <0-63> ipv6 color <0-32>**
- **vlan create <2-4059> name WORD<0-64> type spbm-bvlan**
- **vlan create <2-4059> name WORD<0-64> type spbm-bvlan color <0-32>**
- **vlan create <2-4059> type port-mstprstp <0-63>**
- **vlan create <2-4059> type port-mstprstp <0-63> color <0-32>**
- **vlan create <2-4059> type protocol-mstprstp <0-63> ipv6**
- **vlan create <2-4059> type protocol-mstprstp <0-63> ipv6 color <0-32>**
- **vlan create <2-4059> type spbm-bvlan**
- **vlan create <2-4059> type spbm-bvlan color <0-32>**
- **vlan create <2-4059> name WORD<0-64> type pvlan-mstprstp <0-63> secondary <2-4059>**
- **vlan create <2-4059> name WORD<0-64> type pvlan-mstprstp <0-63> secondary <2-4059> color <0-32>**
- **vlan create <2-4059> type pvlan-mstprstp <0-63> secondary <2-4059> color <0-32>**

Command Parameters

<2-4059>

Specifies the VLAN ID in the range of 2 to 4059. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1. By default, the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998.

color <0-32>

Specifies the color of the VLAN.

name WORD<0-64>

Specifies the VLAN name in the range of 0-64. This parameter is optional.

Note

Do not use the name Mgmt when you specify a name for the VLAN that you create. The switch creates a management VLAN at boot up with the assigned name Mgmt.

The show command does not show the management VLAN.

port-mstprstp <0-63>

Specifies the VLAN type as created by port. <0-63> specifies the instance ID.

protocol-mstprstp <0-63>

Specifies the VLAN type as created by protocol. <0-63> specifies the instance ID.

pvlan-mstprstp <0-63>

Specifies the VLAN type as private for use in Etree deployments. <0-63> specifies the instance ID.

spbm-bvlan

Specifies the VLAN type as the backbone VLAN (B-VLAN) for Shortest Path Bridging MAC (SPBM).

type ipsubnet-mstprstp <0-63> <A.B.C.D/X> [color <0-32]

Creates a VLAN by IP subnet:

- <0-63> is the STP instance ID in the range of 0-63
- A.B.C.D/X is the subnet address or mask {a.b.c.d/x | a.b.c.d/x.x.x.x}
- color <0-32> is the color of the VLAN in the range of 0 to 32

type port-mstprstp <0-63> [color <0-32>]

Creates a VLAN by port: 0-63 is the STP instance ID from 0 to 63. color <0-32> is the color of the VLAN in the range of 0 to 32.

type protocol-mstprstp <0-63> {appleTalk | decLat | decOther | ip | ipv6 | ipx802dot2 | ipx802dot3 | ipxEthernet2 | ipxsnap | netBios | PPPoE | rarp | sna802dot2 | snaEthernet2 | vines | xns} [color <0-32>]

Creates a VLAN by protocol:

- 0-63 is the STP instance ID
- appleTalk is the apple talk protocol
- decLat is the declat protocol
- decOther is the decother protocol
- ip is the Ip version 4 protocol
- ipx802dot2 specifies the Novell Internetwork Packet Exchange (IPX) on IEEE 802.2 frames
- ipx802dot3 specifies the Novell Internetwork Packet Exchange (IPX) on Ethernet 802.3 frames
- ipxEthernet2 specifies the Novell IPX on Ethernet type 2 frames
- ipxsnap specifies the Novell IPX on Ethernet Standard Network Access Protocol (SNAP) frames

- netbios is the Netbios protocol
- PPPoE is the Point-to-Point Protocol Over Ethernet
- rarp is the Rarp protocol
- sna802dot2 is the Sna802dot2 protocol
- snaethernet2 is the Snaethernet2 protocol
- vines is the Vines protocol
- xns is the Xns protocol
- color <0-32> is the color of the VLAN in the range of 0 to 32

type protocol-mstprstp <0-63> userDefined {0x0000 | <decimal value>} [color] <0-32>] [encap {ethernet-ii | llc | snap}]

Creates a VLAN using a user defined protocol.

- <0-63> is the STP instance ID in the range of 0-63
- {0x0000|<decimal value>} is the protocol ID in hexadecimal or decimal value
- color <0-32> is the color of the VLAN in the range of 0 to 32
- encap specifies the frame encapsulation header type

type pvlan-mstprstp <0-63> secondary <2-4059> color <0-32>

Creates a Private VLAN by port for a secondary VLAN ID. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

By default, the system reserves VLAN IDs 4060 to 4094 for internal use. If you enable VRF scaling and SPBM mode, the system also reserves VLAN IDs 3500 to 3998.

type srcmac-mstprstp <0-63> [color<0-32>]

Creates a VLAN by source MAC address: 0-63 is the STP instance ID in the range of 0-63. color <0-32> is the color of the VLAN in the range of 0 to 32.

Default

None

Command Mode

Global Configuration

Usage Guidelines

You cannot configure a VLAN name that uses all numbers, for example, 222.

vlan delete

Delete a VLAN.

Syntax

- **no vlan <2-4059>**
- **vlan delete <2-4059>**

Command Parameters

<2-4059>

Specifies the VLAN ID in the range of 2 to 4059. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1. By default, the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998.

Default

None

Command Mode

Global Configuration

vlan i-sid

Map a customer VLAN (C-VLAN) to a service instance identifier (I-SID) to create a Layer 2 VSN. The C-VLAN cannot be a backbone VLAN (B-VLAN).

You can specify an I-SID name before or after you associate I-SID to VLAN. By default, the I-SID name is the word "ISID-" followed by its numeric value.

Syntax

- **default vlan i-sid <1-4059>**
- **no vlan i-sid <1-4059>**
- **vlan i-sid <1-4059> <0-16777215> [force]**

Command Parameters

<0-16777215>

Specifies the I-SID. You cannot use I-SID 0x00ffffff. The system reserves this I-SID to advertise the virtual BMAC in an SMLT dual-homing environment.

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot

configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

force

Specifies the software must replace the existing VLAN-to-I-SID mapping, if one exists.

Default

The default I-SID is 0.

Command Mode

Global Configuration

Usage Guidelines



Note

When you add or remove an I-SID on a VLAN IP interface for 5520 Series or 5720 Series, the switch disables and enables routing on the VLAN interface.

vlan mac-address-entry

Modify or flush the entries in the forwarding database (FDB).

Syntax

- **vlan mac-address-entry <1-4059> flush**
- **vlan mac-address-entry <1-4059> sync**

Command Parameters

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

flush

Flushes the FDB.

sync

Synchronizes the switch forwarding database with the forwarding database of the other aggregation switch.

Default

None

Command Mode

Global Configuration

vlan mac-address-static

Configure the static members of a VLAN to set the VLAN static member parameters.

Syntax

- **no vlan mac-address-static <1-4059> <0x00:0x00:0x00:0x00:0x00:0x00>**
- **vlan mac-address-static <1-4059> <0x00:0x00:0x00:0x00:0x00:0x00> {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

<0x00:0x00:0x00:0x00:0x00:0x00>

Adds a static member to a VLAN bridge:

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

Global Configuration

vlan members

Add ports to a VLAN.

Syntax

- **vlan members <1-4059> {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **vlan members <1-4059> {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} { portmember | static | notallowed }**
- **vlan members add <1-4059> {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **vlan members add <1-4059> {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} { portmember | static | notallowed }**
- **vlan members remove <1-4059> {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **vlan members remove <1-4059> {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} { portmember | static | notallowed }**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

notallowed

Selects the port type to not-allowed.

portmember

Select the port type to port member.

static

Selects the port type to static.

Default

None

Command Mode

Global Configuration

vlan mlt

Add an MLT to a VLAN.

Syntax

- **vlan mlt <1-4059> <1-512>**

Command Parameters

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

<1-512>

Specifies the MLT ID.

Default

None

Command Mode

Global Configuration

vlan name

Change the name of a VLAN.

Syntax

- **vlan name <2-4059> WORD<0-64>**

Command Parameters

<2-4059>

Specifies the VLAN ID in the range of 2 to 4059. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1. By default, the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998.

<LINE>

New name for VLAN

Default

None

Command Mode

Global Configuration

Usage Guidelines

You cannot configure a VLAN name that uses all numbers, for example, 222.

vlan nodal-mep

Add nodal Maintenance Endpoints (MEPs) to the VLAN. The Nodal B-VLAN MEPs created on the CP and function as if they are connected to the virtual interface of the given B-VLAN. Because of this, they are supported for both port and MLT based B-VLANs. To support this behavior, a MAC entry is added to the forwarding database (FDB) and a new CFM data path table containing the B-VLAN and MP level are added to direct CFM frames to the CP as required.

Syntax

- **no vlan nodal-mep <1-4059> WORD<0-22> WORD<0-22> <1-8191>**
- **vlan nodal-mep <1-4059> WORD<0-22> WORD<0-22> <1-8191>**

Command Parameters

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

<1-8191>

Specifies the nodal Maintenance Endpoints (MEPs) to add to the VLAN.

WORD<0-22> WORD<0-22>

The first parameter, specifies the Maintenance-Domain (MD) name. The second parameter, specifies the Maintenance-Association (MA) name.

Default

None

Command Mode

Global Configuration

vlan nodal-mip-level

Add a nodal Maintenance Intermediate Point level to the VLAN. The Nodal MIP is associated with a B-VLAN. VLAN and level are sufficient to specify the Nodal MIP entity. The Nodal MIP MAC address is the SPBM system ID for the node on which it resides. If the fastpath sends a message to the CP, the MIP responds if it is not the target and the MEP responds if it is the target.

Syntax

- **no vlan nodal-mip-level <1-4059> WORD<0-15>**
- **vlan nodal-mip-level <1-4059> WORD<0-15>**

Command Parameters

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

WORD<0-15>

Adds the nodal Maintenance Intermediate Point (MIP) level.

Default

None

Command Mode

Global Configuration

vlan ports

Modify VLAN port settings.

Syntax

- **vlan ports {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} tagging tagAll**
- **vlan ports {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} tagging untagAll**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

<LINE>

Port list

disable

Disable tagging on this port

enable

Enable tagging on this port

filter-unregistered-frames {disable | enable}

Enable/disable filtering of unregistered frames

filter-untagged-frame {disable | enable}

Enable/disable filtering of untagged frames

name <LINE>

Set VLAN port name

priority <0-7>

Set VLAN port priority

pvid <1-4094>

Change PVID

tagAll

Enable tagging on this port

tagging {disable | enable | tagAll | tagPvidOnly | untagAll | untagPvidOnly}

Enable/disable tagging

tagPvidOnly

Enable tagging of packets matching the

untagAll

Disable tagging on this port

untagPvidOnly

Disable tagging of packets matching the Pv

Default

None

Command Mode

Global Configuration

vlan rmon

Enable RMON on this VLAN.

Syntax

- **default vlan rmon <1-4059>**
- **no vlan rmon <1-4059>**
- **vlan rmon <1-4059>**

Command Parameters

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

The default is disabled.

Command Mode

Global Configuration

vlan srcmac

Add MAC address for a VLAN.

Syntax

- **default vlan srcmac <2-4059> 0x00:0x00:0x00:0x00:0x00:0x00**
- **no vlan srcmac <2-4059> 0x00:0x00:0x00:0x00:0x00:0x00**
- **vlan srcmac <2-4059> 0x00:0x00:0x00:0x00:0x00:0x00**

Command Parameters

<0x00:0x00:0x00:0x00:0x00:0x00>

Specifies the source MAC address.

<2-4059>

Specifies the VLAN ID in the range of 2 to 4059. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1. By default, the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998.

Default

None

Command Mode

Global Configuration

vlan static-mcastmac

Add VLAN static multicast MAC entries.

Syntax

- **default vlan static-mcastmac <1-4059> [0x00:0x00:0x00:0x00:0x00:0x00] [mlt WORD<1-256>]**
- **default vlan static-mcastmac <1-4059> [0x00:0x00:0x00:0x00:0x00:0x00] [mlt WORD<1-256>]**
- **default vlan static-mcastmac <1-4059> ports{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} [0x00:0x00:0x00:0x00:0x00:0x00]**
- **no vlan static-mcastmac <1-4059> 0x00:0x00:0x00:0x00:0x00:0x00**
- **no vlan static-mcastmac <1-4059> ports {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} [0x00:0x00:0x00:0x00:0x00:0x00]**
- **vlan static-mcastmac <1-4059> ports {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} [0x00:0x00:0x00:0x00:0x00:0x00]**
- **vlan static-mcastmac <1-4059>[0x00:0x00:0x00:0x00:0x00:0x00][{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}] [mlt WORD<1-256>]**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

<1-256>

Specifies the MLT ID.

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

0x00:0x00:0x00:0x00:0x00:0x00

Specifies the MAC address.

Default

None

Command Mode

Global Configuration

vnid

Create a VNID instance.

Syntax

- **no vnid <1–16777215> i-sid <1–16777215>**
- **vnid <1–16777215> i-sid <1–16777215>**

Command Parameters

<1–16777215> i-sid <1–16777215>

Uses this VNID and I-SID information to create a VNID instance and enter VXLAN Configuration Mode. A VNID must not have the same value as an I-SID.

Note

The command prompt changes to #vxlan to indicate that you are now in VXLAN Configuration mode for the VNID specified in vnid <1–16777215>.

Default

None

Command Mode

Global Configuration

vnid mac-address-entry

Flush all the learned MAC addresses from the forwarding database of the selected VNID.

Syntax

- **vnid mac-address-entry <1–16777215> flush**

Command Parameters

<1–16777215> flush

Flush all the learned MAC addresses from the forwarding database of the selected VNID.

Default

None

Command Mode

Global Configuration

vtep (configuration)

Configure the remote VTEP IP address.

Note
The remote VTEP IP address cannot be a local, broadcast, or multicast IP address.

Syntax

- **`no vtep <1–500> ip <A.B.C.D> [name WORD<1–64>]`**
- **`vtep <1–500> ip <A.B.C.D> [name WORD<1–64>]`**

Command Parameters

<1–500> ip <A.B.C.D> [name WORD<1–64>]

Specifies an index value and an IP address that uniquely identifies this remote VTEP. Optionally, you can assign a specific name to this tunnel. By default, the switch assigns a name in this format: VTEP-<#ID>-<IP address>

Default

None

Command Mode

Global Configuration

vtep source-ip

Configure the VTEP source IP address.

Syntax

- **no vtep source-ip <A.B.C.D> [vrf WORD<1-16>]**
- **vtep source-ip <A.B.C.D> [vrf WORD<1-16>]**

Command Parameters

<A.B.C.D> [vrf WORD<1-16>]

Specifies the VXLAN tunnel end point (VTEP) source IP address, which can be on the GRT or a VRF.

Default

None

Command Mode

Global Configuration

web-server certificate

Configure the installed digital certificate to be used.

Syntax

- **web-server certificate {ca-name | cert-subject-name}**
- **no web-server certificate**
- **default web-server certificate**

Command Parameters

ca-name WORD <1-45>

Specifies the name of the Certificate Authority.

cert-subject-name WORD <1-45>

Specifies the subject identity label to be used. Certificates for this subject are already installed.

Default

None

Command Mode

Global Configuration

web-server def-display-rows

Configures the web server default display row width.

Syntax

- **web-server def-display-rows <10-100>**
- **default web-server def-display-rows**

Command Parameters

<10-100>

Specifies the default display row width.

Default

The default is 30.

Command Mode

Global Configuration

web-server enable

Enable the web management interface to provide management access to the switch using a web browser. You must enable the web interface before you can connect to the system using Enterprise Device Manager (EDM).

Syntax

- **web-server enable**
- **no web-server enable**
- **default web-server enable**

Default

The default is disabled.

Command Mode

Global Configuration

Usage Guidelines

The system prompts you to change the admin and read-only user default passwords when you use the **web-server enable** command to enable the web management interface.

web-server help-tftp

Specifies the path to the TFTP server that stores the HTML Help files for the web server.

Syntax

- **web-server help-tftp WORD<0-256>**

Command Parameters

WORD<0-256>

Specifies the file name in the following format: a.b.c.d:/.

Default

None

Command Mode

Global Configuration

web-server http-port

Configures the web server HTTP port.

Syntax

- **web-server http-port <80-49151>**
- **default web-server http-port**

Command Parameters

<80-49151>

Specifies the web server HTTP port.

Default

The default is 80.

Command Mode

Global Configuration

Usage Guidelines

To select another port for HTTP, you can discover the ports that TCP already use. Use the **show ip tcp connections** command to list the ports already in use, and then select a port that does not display in the command output.

web-server inactivity-timeout

Configures the web-server login session inactivity timeout.

Syntax

- **web-server inactivity-timeout <30-65535>**
- **default web-server inactivity-timeout**

Command Parameters

<30-65535>

Specifies the inactivity timeout.

Default

The default is 900 seconds (15 minutes).

Command Mode

Global Configuration

web-server password

Configures the web server password.

Syntax

- **web-server password min-password-len <1-80>**
- **web-server password ro WORD<1-20>**
- **web-server password rwa WORD<1-20>**
- **default web-server min-passwd-len**

Command Parameters

min-password-len <1-80>

Configures the minimum password length. By default, the minimum password length is 8 characters.

ro WORD<1-80>

Specifies the user name and the password for the access level read-only. The default RO user name is user. After you enter the user name, the switch prompts for the password.

rwa WORD<1-80>

Specifies the user name and the password for the access level read-write-all. The default RWA user name is admin. After you enter the user name, the switch prompts for the password.

Default

None

Command Mode

Global Configuration Mode

web-server read-only-user enable

Enables the web server read-only (RO) user.

Syntax

- **web-server read-only-user**
- **no web-server read-only-user**

Default

The default is disabled.

Command Mode

Global Configuration

web-server secure-only

Enables secure-only access to the web server.

Syntax

- **web-server secure-only**
- **no web-server secure-only**
- **default web-server secure-only**

Default

The default is enabled.

Command Mode

Global Configuration

Usage Guidelines

By default, the web server is configured with the secure-only option, which requires you to use https to access EDM. To access EDM using http, you must disable the secure-only option by using the **no web-server secure-only** command.

web-server ssl-renegotiation

Enables SSL renegotiation.

Syntax

- **web-server ssl-renegotiation**
- **no web-server ssl-renegotiation**

Default

The default is enabled.

Command Mode

Global Configuration

web-server tls-min-ver

Configures the minimum version of the TLS protocol supported by the web-server.

Syntax

-
- **web-server tls-min-ver {tlsv10 | tlsv11 | tlsv12}**
- **default tls-min-ver**

Command Parameters

<tlsv10|tlsv11|tlsv12>

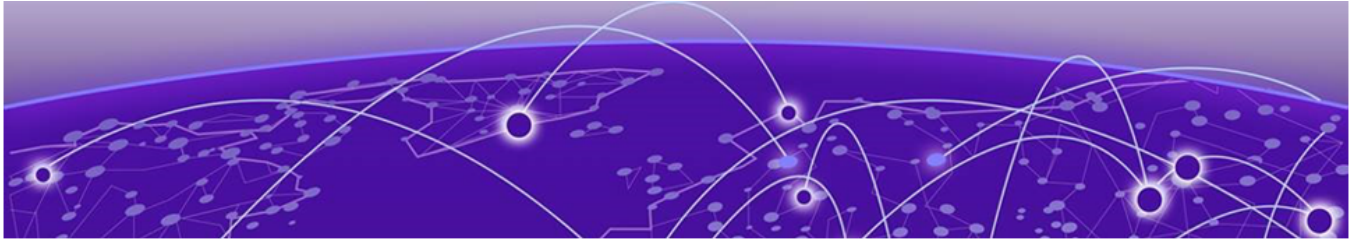
Specifies the minimum version of the TLS protocol supported by the web-server.

Default

The default is tlsv12.

Command Mode

Global Configuration



IS-IS Router Configuration

The following topics document commands available in IS-IS Router Configuration mode of the command line interface (CLI).

accept (for the GRT)

Configure an Intermediate-System-to-Intermediate-System (IS-IS) accept policy instance to apply to all routes from all Backbone Edge Bridges (BEBs) for the Global Routing Table (GRT).

Syntax

- **accept backbone-route-map WORD<1-64>**
- **accept i-sid <1-16777215>**
- **accept i-sid <1-16777215> backbone-route-map WORD<1-64>**
- **accept i-sid <1-16777215> enable**
- **accept i-sid <1-16777215> route-map WORD<1-64>**
- **accept isid-list WORD<1-32>**
- **accept isid-list WORD<1-32> backbone-route-map WORD<1-64>**
- **accept isid-list WORD<1-32> enable**
- **accept isid-list WORD<1-32> route-map WORD<1-64>**
- **accept route-map WORD<1-64>**
- **accept route-map WORD<1-64> backbone-route-map WORD <1-64>**
- **no accept backbone-route-map**
- **no accept i-sid <1-16777215>**
- **no accept i-sid <1-16777215> backbone-route-map**
- **no accept i-sid <1-16777215> enable**
- **no accept i-sid <1-16777215> route-map**
- **no accept isid-list WORD<1-32>**
- **no accept isid-list WORD<1-32> backbone-route-map**
- **no accept isid-list WORD<1-32> enable**
- **no accept isid-list WORD<1-32> route-map**
- **no accept route-map**

Command Parameters

backbone-route-map WORD<1-64>

Configures the backbone-route-map for DvR routes.

enable

Enables an IS-IS accept policy.

i-sid <1-16777215>

Specifies a service instance identifier (I-SID) number that represents a local or remote Layer 3 VSN for the IS-IS accept policy.

isid-list WORD <1-32>

Specifies a name for a list of I-SID numbers that represent local or remote Layer 3 VSN for the IS-IS accept policy.

route-map WORD<1-64>

Configures the IS-IS route policy by name.

Default

None

Command Mode

IS-IS Router Configuration

accept adv-rtr (for the GRT)

Use an IS-IS accept policy instance to apply to a specific advertising advertising Backbone Edge Bridge (BEB) for the Global Routing Table (GRT).

Syntax

- **accept adv-rtr <x.xx.xx>**
- **accept adv-rtr <x.xx.xx> backbone-route-map WORD<1-64>**
- **accept adv-rtr <x.xx.xx> enable**
- **accept adv-rtr <x.xx.xx> i-sid <1-16777215>**
- **accept adv-rtr <x.xx.xx> i-sid <1-16777215> backbone-route-map WORD<1-64>**
- **accept adv-rtr <x.xx.xx> i-sid <1-16777215> enable**
- **accept adv-rtr <x.xx.xx> i-sid <1-16777215> route-map WORD<1-64>**
- **accept adv-rtr <x.xx.xx> isid-list WORD<1-32>**
- **accept adv-rtr <x.xx.xx> isid-list WORD<1-32> backbone-route-map WORD<1-64>**
- **accept adv-rtr <x.xx.xx> isid-list WORD<1-32> enable**
- **accept adv-rtr <x.xx.xx> isid-list WORD<1-32> route-map WORD<1-64>**

- **accept adv-rtr <x.xx.xx> route-map WORD<1-64>**
- **no accept adv-rtr <x.xx.xx>**
- **no accept adv-rtr <x.xx.xx> backbone-route-map**
- **no accept adv-rtr <x.xx.xx> enable**
- **no accept adv-rtr <x.xx.xx> i-sid <1-16777215>**
- **no accept adv-rtr <x.xx.xx> i-sid <1-16777215> backbone-route-map**
- **no accept adv-rtr <x.xx.xx> i-sid <1-16777215> enable**
- **no accept adv-rtr <x.xx.xx> i-sid <1-16777215> route-map**
- **no accept adv-rtr <x.xx.xx> isid-list WORD<1-32>**
- **no accept adv-rtr <x.xx.xx> isid-list WORD<1-32> enable**
- **no accept adv-rtr <x.xx.xx> route-map**

Command Parameters

<x.xx.xx>

Specifies the Shortest Path Bridging MAC (SPBM) nickname at a level for each advertising BEB.

adv-rtr <x.xx.xx>

Specifies the Shortest Path Bridging MAC (SPBM) nickname for an advertising BEB for the IS-IS accept policy.

backbone-route-map WORD<1-64>

Configures the backbone-route-map for DVR routes.

enable

Enables an IS-IS accept policy.

i-sid <0-16777215>

Specifies a service instance identifier (I-SID) number that represents a local or remote Layer 3 VSN for the IS-IS accept policy.

isid-list WORD <1-32>

Specifies a name for a list of I-SID numbers that represent local or remote Layer 3 VSN for the IS-IS accept policy.

route-map WORD<1-64>

Configures the IS-IS route policy by name.

Default

None

Command Mode

IS-IS Router Configuration

accept i-sid (for the GRT)

Configure an Intermediate-System-to-Intermediate-System (IS-IS) accept policy instance to apply to a specific Service Instance Identifier (I-SID) for the Global Routing Table (GRT).

Syntax

- **accept i-sid <1-16777215>**
- **accept i-sid <1-16777215> backbone-route-map WORD<1-64>**
- **accept i-sid <1-16777215> enable**
- **accept i-sid <1-16777215> route-map WORD<1-64>**
- **no accept i-sid <1-16777215>**
- **no accept i-sid <1-16777215> backbone-route-map**
- **no accept i-sid <1-16777215> enable**
- **no accept i-sid <1-16777215> route-map**

Command Parameters

backbone-route-map WORD<1-64>

Configures the backbone-route-map for DvR routes.

enable

Enables an IS-IS accept policy.

i-sid <1-16777215>

Specifies a service instance identifier (I-SID) number that represents a local or remote Layer 3 VSN for the IS-IS accept policy.

route-map WORD<1-64>

Configures the IS-IS route policy by name.

Default

None

Command Mode

IS-IS Router Configuration

accept isid-list (for the GRT)

Configure an Intermediate-System-to-Intermediate-System (IS-IS) accept policy instance to apply to a specific list of Service Instance Identifiers (I-SIDs) for the Global Routing Table (GRT).

Syntax

- **accept isid-list <1-16777215>**
- **accept isid-list <1-16777215> backbone-route-map WORD<1-64>**
- **accept isid-list <1-16777215> enable**
- **accept isid-list <1-16777215> route-map WORD<1-64>**
- **no accept isid-list <1-16777215>**
- **no accept isid-list <1-16777215> backbone-route-map**
- **no accept isid-list <1-16777215> enable**
- **no accept isid-list <1-16777215> route-map**

Command Parameters

backbone-route-map WORD<1-64>

Configures the backbone-route-map for DvR routes.

enable

Enables an IS-IS accept policy.

isid-list WORD <1-32>

Specifies a name for a list of I-SID numbers that represent local or remote Layer 3 VSN for the IS-IS accept policy.

route-map WORD<1-64>

Configures the IS-IS route policy by name.

Default

None

Command Mode

IS-IS Router Configuration

accept route-map

Configure an Intermediate-System-to-Intermediate-System (IS-IS) accept policy instance to apply using a specific route-map for the Global Routing Table (GRT).

Syntax

- **accept route-map WORD<1-64>**
- **no accept route-map**

Command Parameters

WORD<1-64>

Configures the IS-IS route policy by name.

Default

None

Command Mode

IS-IS Router Configuration

area-name (for IS-IS)

Configures the area name for the home area.

Syntax

- **area-name WORD<0-255>**
- **no area-name**
- **default area-name**

Command Parameters

WORD<0-255>

Specifies the area name.

Default

The default value is area-manual-area, where manual-area represents the IS-IS manual-area value that you configure.

Command Mode

IS-IS Router Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

area-vnode nick-name (for IS-IS)

Configures the IS-IS Multi-area SPB virtual node nickname.

Syntax

- **area-vnode nick-name <x.xx.xx>**

- **default area-vnode nick-name**
- **no area-vnode nick-name**

Command Parameters

<X.XX.XX>

Specifies the nickname for the Multi-area SPB virtual node. The value is 2.5 bytes.

Default

The default is none.

Command Mode

IS-IS Router Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

area-vnode sys-name (for IS-IS)

Configures the IS-IS Multi-area SPB virtual node system name.

Syntax

- **area-vnode sys-name WORD<0-255>**
- **default area-vnode sys-name**
- **no area-vnode sys-name**

Command Parameters

WORD<0-255>

Specifies the IS-IS Multi-area SPB virtual node system name.

Default

None

Command Mode

IS-IS Router Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

area-vnode system-id (for IS-IS)

Configures the IS-IS Multi-area SPB virtual node system ID.

Syntax

- **area-vnode system-id xxxx.xxxx.xxxx**
- **default area-vnode system-id**
- **no area-vnode system-id**

Command Parameters

xxxx.xxxx.xxxx

Specifies the IS-IS Multi-area SPB virtual node system ID.

Default

None

Command Mode

IS-IS Router Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

backbone

Configures a non-DvR BEB to join the DvR backbone so that it can receive redistributed DvR host routes from all DvR Controllers in the SPB network.

Syntax

- **backbone enable**
- **no backbone enable**

Command Parameters

enable

Configures a non- DvR BEB to join the DvR backbone.

Default

none

Command Mode

IS-IS Router Configuration

csnp-interval

Configure the Complete Sequence Number Packets (CSNP) interval in seconds. This command is a system level parameter that applies to Level 1 CSNP generation on all interfaces.

Syntax

- **csnp-interval <1-600>**
- **default csnp-interval**
- **no csnp-interval**

Command Parameters

<1-600>

Configures the interval, in seconds.

Default

The default CSNP interval is 10 seconds.

Command Mode

IS-IS Router Configuration

hello-padding

Pads hello packets to the full interface maximum transmission unit (MTU) to detect MTU mismatches.

Syntax

- **hello-padding**
- **default hello-padding**
- **no hello-padding**

Default

The default is enabled.

Command Mode

IS-IS Router Configuration

ip-source-address

Configure the circuitless IP (CLIP) interface as the source address for SPBM IP Shortcuts. Assigns a source IP address for locally generated IP packets whose egress port is an SPBM network-to-network interface (NNI) port.

The source-address value must be a locally configured loopback IP address. The IS-IS automatically advertises the source-address to other SPBM edge routers when you enable IP shortcuts. You must first configure a valid source-address before you enable IP shortcuts.

Syntax

- **ip-source-address {A.B.C.D}**
- **no ip-source-address**

Command Parameters

<A.B.C.D>

Specifies the circuitless IP (CLIP) interface as the source address for SPBM IP shortcuts.

Default

None

Command Mode

IS-IS Router Configuration

ip-tunnel-source-address

Configure the IP tunnel source address.

Syntax

- **ip-tunnel-source-address {A.B.C.D} [vrf WORD<1-16>] [overlay]**
- **no ip-tunnel-source-address**

Command Parameters

{A.B.C.D}

Specifies the IS-IS IPv4 tunnel source address.

overlay

Permits configuration of the tunnel source address even though it belongs to a VRF with an attached I-SID.

vrf WORD<1-16>

Specifies the VRF name associated with the IP tunnel.

Default

None

Command Mode

IS-IS Router Configuration

Usage Guidelines

overlay parameter does not apply to 7830 Series.

ipv6 accept (IS-IS)

Configure an IPv6 Intermediate-System-to-Intermediate-System (IS-IS) accept policy instance to apply to all IPv6 routes from all Backbone Edge Bridges (BEBs).

Syntax

- **ipv6 accept i-sid <1-16777215>**
- **ipv6 accept i-sid <1-16777215> enable**
- **ipv6 accept i-sid <1-16777215> route-map WORD<1-64>**
- **ipv6 accept isid-list WORD<1-32>**
- **ipv6 accept isid-list WORD<1-32> enable**
- **ipv6 accept isid-list WORD<1-32> route-map WORD<1-64>**
- **ipv6 accept route-map WORD<1-64>**
- **no ipv6 accept backbone-route-map**
- **no ipv6 accept i-sid <1-16777215>**
- **no ipv6 accept i-sid <1-16777215> enable**
- **no ipv6 accept i-sid <1-16777215> route-map**
- **no ipv6 accept isid-list WORD<1-32>**
- **no ipv6 accept isid-list WORD<1-32> enable**

- **no ipv6 accept isid-list WORD<1-32> route-map**
- **no ipv6 accept route-map**

Command Parameters

enable

Enables an IPv6 IS-IS accept policy.

i-sid <1-16777215>

Specifies a service instance identifier (I-SID) number that represents a local or remote IPv6 Layer 3 VSN for the IPv6 IS-IS accept policy.

isid-list WORD <1-32>

Specifies a name for a list of I-SID numbers that represent local or remote IPv6 Layer 3 VSN for the IPv6 IS-IS accept policy.

route-map WORD<1-64>

Configures the IPv6 IS-IS route policy by name.

Default

None

Command Mode

IS-IS Router Configuration

ipv6 accept adv-rtr (for IS-IS)

Use an IPv6 IS-IS accept policy instance to apply to a specific advertising Backbone Edge Bridge (BEB).

Syntax

- **ipv6 accept adv-rtr <x.xx.xx>**
- **ipv6 accept adv-rtr <x.xx.xx> enable**
- **ipv6 accept adv-rtr <x.xx.xx> i-sid <1-16777215>**
- **ipv6 accept adv-rtr <x.xx.xx> i-sid <1-16777215> enable**
- **ipv6 accept adv-rtr <x.xx.xx> i-sid <1-16777215> route-map WORD<1-64>**
- **ipv6 accept adv-rtr <x.xx.xx> isid-list WORD<1-32>**
- **ipv6 accept adv-rtr <x.xx.xx> isid-list WORD<1-32> enable**
- **ipv6 accept adv-rtr <x.xx.xx> isid-list WORD<1-32> route-map WORD<1-64>**
- **ipv6 accept adv-rtr <x.xx.xx> route-map WORD<1-64>**
- **no ipv6 accept adv-rtr <x.xx.xx>**

- **no ipv6 accept adv-rtr <x.xx.xx> enable**
- **no ipv6 accept adv-rtr <x.xx.xx> i-sid <1-16777215>**
- **no ipv6 accept adv-rtr <x.xx.xx> i-sid <1-16777215> enable**
- **no ipv6 accept adv-rtr <x.xx.xx> i-sid <1-16777215> route-map**
- **no ipv6 accept adv-rtr <x.xx.xx> isid-list WORD<1-32>**
- **no ipv6 accept adv-rtr <x.xx.xx> isid-list WORD<1-32> enable**
- **no ipv6 accept adv-rtr <x.xx.xx> route-map**

Command Parameters

<x.xx.xx>

Specifies the Shortest Path Bridging MAC (SPBM) nickname at a level for each advertising BEB.

enable

Enables an IPv6 IS-IS accept policy for the specific advertising Backbone Edge Bridge (BEB).

i-sid <0-16777215>

Specifies a service instance identifier (I-SID) number that represents a local or remote IPv6 Layer 3 VSN for the IS-IS accept policy for the specific advertising Backbone Edge Bridge (BEB).

isid-list WORD <1-32>

Specifies a name for a list of I-SID numbers that represent local or remote IPv6 Layer 3 VSN for the IS-IS accept policy for the specific advertising Backbone Edge Bridge (BEB).

route-map WORD<1-64>

Configures the IS-IS route policy by name for the specific advertising Backbone Edge Bridge (BEB).

Default

None

Command Mode

IS-IS Router Configuration

ipv6 redistribute (for GRT)

Ipv6 configurations.

Syntax

- **default ipv6 redistribute {bgp | direct | ospf | rip |static} [enable]**
- **ipv6 redistribute bgp {enable | metric <0-65535> | metric-type [type1] [type2] | route-map WORD<1-64>}**
- **ipv6 redistribute direct {enable | metric <0-65535> | metric-type [type1][type2] | route-map WORD<1-64>}**
- **ipv6 redistribute static {enable | metric <0-65535> | metric-type [type1][type2] | route-map WORD<1-64>}**
- **no ipv6 redistribute {bgp | direct | ospf | rip |static} [enable]**

Command Parameters

{bgp | direct | ospf | rip |static}

Specifies the type of IPv6 route to redistribute to the IS-IS routing domain.

{enable | metric <0-65535> | metric-type [type1][type2] | route-map WORD<1-64>}

Enables redistribution.

Default

None

Command Mode

IS-IS Router Configuration

ipv6 redistribute (for ISIS)

Enable redistribution to redistribute IPv6 routes into an ISIS routing domain.

Syntax

- **default ipv6 redistribute {bgp | direct | ospf | rip |static} [enable]**
- **ipv6 redistribute direct {enable | metric <0-65535> | metric-type [type1][type2] | route-map WORD<1-64>}**
- **ipv6 redistribute ospf {enable | metric <0-65535> | metric-type [type1][type2] | route-map WORD<1-64>}**
- **ipv6 redistribute static {enable | metric <0-65535> | metric-type [type1][type2] | route-map WORD<1-64>}**
- **no ipv6 redistribute {bgp | direct | ospf | rip |static} [enable]**

Command Parameters

{bgp | direct | ospf | rip |static}

Specifies the type of IPv6 route to redistribute to the ISIS routing domain.

{enable | metric <0-65535> | metric-type [type1][type2] | route-map WORD<1-64>}

Enables redistribution.

Default

The default is disabled.

Command Mode

IS-IS Router Configuration

ipv6 redistribute bgp enable (For IS-IS)

Enable IPv6 BGP redistribute.

Syntax

- **default ipv6 redistribute bgp enable**
- **ipv6 redistribute bgp enable**
- **no ipv6 redistribute bgp enable**

Default

None

Command Mode

IS-IS Router Configuration

ipv6-source-address

Configure the circuitless IP (CLIP) interface as the source address for SPBM IPv6 Shortcuts. Assigns a source IPv6 address for locally generated IPv6 packets whose egress port is an SPBM network-to-network interface (NNI) port.

The source-address value must be a locally configured loopback IPv6 address. The IS-IS automatically advertises the source-address to other SPBM edge routers when you enable IPv6 shortcuts. You must first configure a valid source-address before you enable IPv6 shortcuts.

Syntax

- **ipv6-source-address WORD<0-46>**

Command Parameters

WORD<0-46>

Enter isis ipv6 source address.

Default

None

Command Mode

IS-IS Router Configuration

ipv6-source-address <ipv6-addr>

Assign a source IPv6 address for locally generated IPv6 packets that have an SPBM network-to-network interface (NNI) port as an egress port.

The IPv6-source-address value must be a locally configured loopback IPv6 address. The IPv6 source address is automatically advertised by ISIS to other SPBM edge routers when IPv6 Shortcuts is enabled. IPv6 shortcuts cannot be enabled without first configuring a valid IPv6-source-address.

Syntax

- **ipv6-source-address <ipv6-addr>**
- **no ipv6-source-address <ipv6-addr>**

Default

None

Command Mode

IS-IS Router Configuration

is-type

Configure the router type globally. Only Level 1 (l1) Intermediate-System-to-Intermediate-System (IS-IS) is supported.

Syntax

- **default is-type**
- **is-type l1**
- **is-type l12**
- **no is-type**

Command Parameters

l1

Configures the router type as Level 1 Intermediate-System-to-Intermediate-System (IS-IS).

l12

Configures the router type as Level 1 and Level 2 Intermediate-System-to-Intermediate-System (IS-IS). You cannot use this parameter.

Default

The default router type is Level 1 (l1).

Command Mode

IS-IS Router Configuration

manual-area (for IS-IS)

Configure an Intermediate-System-to-Intermediate-System (IS-IS) manual area, 1-13 bytes in the format <xx.xxx.xxx...xxxx>. You must configure a manual area to use IS-IS. Only one manual area is supported. Use the no format of this command to remove the area.

Syntax

- **manual-area xx.xxxx.xxxx...xxxx - 1...13 bytes**
- **no manual-area xx.xxxx.xxxx...xxxx - 1...13 bytes**

Command Parameters

xx.xxxx.xxxx...xxxx - 1...13 bytes

Configures the manual area in a size up to 13 octets. Only one area is supported. For Intermediate-System-to-Intermediate-System (IS-IS) to operate, you must configure at least one area.

Default

None

Command Mode

IS-IS Router Configuration

max-lsp-gen-interval

Configure the maximum level, in seconds, between generated Link State Packets (LSPs) by this Intermediate System.

Syntax

- **default max-lsp-gen-interval**
- **max-lsp-gen-interval <30-900>**
- **no max-lsp-gen-interval**

Command Parameters

<30-900>

Specifies the time interval at which the generated Link State Packet (LSP) is refreshed.

Default

The default maximum interval value is 900.

Command Mode

IS-IS Router Configuration

metric

Configure the metric type that you can configure on an Intermediate-System-to-Intermediate-System (IS-IS) interface.

Syntax

- **default metric**
- **metric { narrow | wide }**
- **no metric**

Command Parameters

narrow

Configures the metric type as narrow. The switch only supports wide.

wide

Configures the metric type as wide. The switch only supports wide.

Default

The default IS-IS metric type is wide.

Command Mode

IS-IS Router Configuration

multi-area dvr redistribute backbone

Configures the Multi-area SPB Distributed Virtual Routing backbone redistribution on the switch.

Syntax

- **multi-area dvr redistribute backbone**
- **no multi-area dvr redistribute backbone**

Default

The default is none.

Command Mode

IS-IS Router Configuration

Usage Guidelines

This command does not apply to 5520 Series.

For information about Multi-area SPB feature support, see *Fabric Engine and VOSS Feature Matrix*.

multi-area flags home-always-up

Forwards traffic from UNI ports on the Multi-area SPB designated boundary node into the remote-area, and receive traffic from the remote area that is destined for the UNIs ports, without requiring an established IS-IS adjacency in the home area.



Important
To avoid packet loops back into the home area, this feature does not operate on non-designated boundary nodes.

Syntax

- **multi-area flags home-always-up**
- **no multi-area flags home-always-up**

- **default multi-area flags home-always-up**

Default

The default is enabled.

Note

This command has no functional impact if you do not configure Multi-area SPB.

Command Mode

IS-IS Router Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

multi-area ip redistribute routed-multicast

Configures the Multi-area SPB IPv4 multicast routing redistribution for home to remote direction, remote to home direction, or a specific route map policy.

Syntax

- **multi-area ip redistribute routed-multicast**
- **multi-area ip redistribute routed-multicast [home-to-remote]**
- **multi-area ip redistribute routed-multicast [home-to-remote] [route-map WORD<1-64>]**
- **multi-area ip redistribute routed-multicast [home-to-remote] [enable]**
- **multi-area ip redistribute routed-multicast [remote-to-home]**
- **multi-area ip redistribute routed-multicast [remote-to-home] [route-map WORD<1-64>]**
- **multi-area ip redistribute routed-multicast [remote-to-home] [enable]**

Command Parameters

enable

Enables the Multi-area SPB IPv4 multicast routing redistribution.

home-to-remote

Specifies the multicast routing redistribution configuration for home to remote direction.

remote-to-home

Specifies the multicast routing redistribution configuration for remote to home direction.

route-map WORD<1-64>

Specifies the name of the route map policy.

Default

The default is none.

Command Mode

IS-IS Router Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

multi-area ip redistribute static-isid-routed-multicast enable

Enables the Multi-area SPB IPv4 static I-SID multicast routing redistribution.

Syntax

- **multi-area ip redistribute static-isid-routed-multicast enable**
- **no multi-area ip redistribute static-isid-routed-multicast enable**

Default

None

Command Mode

IS-IS Router Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

multi-area ip redistribute static-isid-routed-multicast home-to-remote

Configures the Multi-area SPB IPv4 static I-SID multicast routing redistribution for home to remote direction.

Syntax

- **multi-area ip redistribute static-isid-routed-multicast home-to-remote enable**
- **multi-area ip redistribute static-isid-routed-multicast home-to-remote isid-list WORD<1-64>**
- **no multi-area ip redistribute static-isid-routed-multicast home-to-remote enable**

Command Parameters

WORD<1-64>

Specifies the name of the I-SID list.

Default

None

Command Mode

IS-IS Router Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

multi-area ip redistribute static-isid-routed-multicast isid-list

Configures the Multi-area SPB IPv4 static multicast routing redistribution I-SID list that consists of specific I-SID names.

Syntax

- **multi-area ip redistribute static-isid-routed-multicast isid-list WORD<1-32>**

Command Parameters

WORD<1-32>

Specifies the name of the I-SID list.

Default

None

Command Mode

IS-IS Router Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

multi-area ip redistribute static-isid-routed-multicast remote-to-home

Configures the Multi-area SPB IPv4 static I-SID multicast routing redistribution for remote to home direction.

Syntax

- **multi-area ip redistribute static-isid-routed-multicast remote-to-home enable**
- **multi-area ip redistribute static-isid-routed-multicast remote-to-home isid-list WORD<1-64>**
- **no multi-area ip redistribute static-isid-routed-multicast remote-to-home enable**

Command Parameters

WORD<1-64>

Specifies the name of the I-SID list.

Default

None

Command Mode

IS-IS Router Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

multi-area ip redistribute unicast

Configures the Multi-area SPB IPv4 unicast redistribution for home to remote direction, remote to home direction, or a specific route map policy.

Syntax

- **default multi-area ip redistribute unicast [enable] [home-to-remote] [remote-to-home] [route-map]**
- **multi-area ip redistribute unicast [delete-tags] [enable] [home-to-remote] [remote-to-home] [route-map WORD<1-64>]**
- **no multi-area ip redistribute unicast [delete-tags] [enable] [home-to-remote] [remote-to-home] [route-map>]**

Command Parameters

delete-tags

Disables the transmission of route tags in Multi-area SPB. Use this parameter if platforms do not correctly calculate the TLV length in TLV 135. By default, route tags are transported in Multi-area SPB.

enable

Enables the Multi-area SPB IPv4 unicast redistribution.

home-to-remote

Specifies the unicast redistribution configuration for home to remote direction.

remote-to-home

Specifies the unicast redistribution configuration for remote to home direction.

route-map WORD<1-64>

Specifies the name of the route map policy.

Default

The default is none.

Command Mode

IS-IS Router Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

multi-area ipv6 redistribute unicast

Configures the Multi-area SPB IPv6 unicast redistribution for home to remote direction, remote to home direction, or a specific route map policy.

Syntax

- **multi-area ipv6 redistribute unicast**
- **multi-area ipv6 redistribute unicast [home-to-remote]**
- **multi-area ipv6 redistribute unicast [home-to-remote] [route-map WORD<1-64>]**
- **multi-area ipv6 redistribute unicast [home-to-remote] [enable]**
- **multi-area ipv6 redistribute unicast [remote-to-home]**
- **multi-area ipv6 redistribute unicast [remote-to-home] [route-map WORD<1-64>]**
- **multi-area ipv6 redistribute unicast [remote-to-home] [enable]**

Command Parameters

enable

Enables the Multi-area SPB IPv6 unicast redistribution.

home-to-remote

Specifies the unicast redistribution configuration for home to remote direction.

remote-to-home

Specifies the unicast redistribution configuration for remote to home direction.

route-map WORD<1-64>

Specifies the name of the route map policy.

Default

The default is none.

Command Mode

IS-IS Router Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

multi-area l2 isid-list WORD<1-32>

Configures the Multi-area SPB layer 2 I-SID list that consists of specific I-SID values.

Syntax

- **multi-area l2 isid-list WORD<1-32> WORD<1-1024>**
- **no multi-area l2 isid-list WORD<1-32> WORD<1-1024>**

Command Parameters

WORD<1-1024>

Specifies the list of I-SID values.

Default

The default is none.

Command Mode

IS-IS Router Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

multi-area l2 redistribute i-sid deny-all except-isid-list

Configures the Multi-area SPB layer 2 I-SID redistribution to exclude all I-SID values specified in the I-SID list configured on the switch.

Syntax

- **default multi-area l2 redistribute i-sid**
- **multi-area l2 redistribute i-sid deny-all except-isid-list WORD<1-32>**
- **no multi-area l2 redistribute i-sid deny-all except-isid-list**

Command Parameters

WORD<1-32>

Specifies the name of the I-SID list.

Default

The default is none.

Command Mode

IS-IS Router Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

multi-area l2 redistribute i-sid permit-all except-isid-list

Configures the Multi-area SPB layer 2 I-SID redistribution to include all I-SID values specified in the I-SID list configured on the switch.

Syntax

- **default multi-area l2 redistribute i-sid**
- **multi-area l2 redistribute i-sid permit-all except-isid-list WORD<1-32>**
- **no multi-area l2 redistribute i-sid permit-all except-isid-list**

Command Parameters

WORD<1-32>

Specifies the name of the I-SID list.

Default

The default is none.

Command Mode

IS-IS Router Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

multi-area l2 redistribute snoop-multicast home-to-remote i-sid <1-16777215>

Configures the Multi-area SPB layer 2 multicast snooping I-SID redistribution for home to remote direction.

Syntax

- **default multi-area l2 redistribute snoop-multicast home-to-remote i-sid <1-16777215>**
- **default multi-area l2 redistribute snoop-multicast home-to-remote i-sid <1-16777215> [enable]**
- **default multi-area l2 redistribute snoop-multicast home-to-remote i-sid <1-16777215> [route-map]**
- **multi-area l2 redistribute snoop-multicast home-to-remote i-sid <1-16777215>**

- **multi-area l2 redistribute snoop-multicast home-to-remote i-sid <1-16777215> [enable]**
- **multi-area l2 redistribute snoop-multicast home-to-remote i-sid <1-16777215> [route-map WORD<1-64>]**
- **no multi-area l2 redistribute snoop-multicast home-to-remote i-sid <1-16777215>**
- **no multi-area l2 redistribute snoop-multicast home-to-remote i-sid <1-16777215> [enable]**
- **no multi-area l2 redistribute snoop-multicast home-to-remote i-sid <1-16777215> [route-map]**

Command Parameters

enables

Enables the Multi-area SPB layer 2 multicast snooping I-SID redistribution.

route-map

Specifies the name of the route map policy.

Default

The default is none.

Command Mode

IS-IS Router Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

multi-area l2 redistribute snoop-multicast home-to-remote isid-list WORD<1-32>

Configures the Multi-area SPB layer 2 multicast snooping I-SID list redistribution for home to remote direction.

Syntax

- **default multi-area l2 redistribute snoop-multicast home-to-remote isid-list WORD<1-32>**
- **default multi-area l2 redistribute snoop-multicast home-to-remote isid-list WORD<1-32> [enable]**
- **default multi-area l2 redistribute snoop-multicast home-to-remote isid-list WORD<1-32> [route-map]**

- **multi-area l2 redistribute snoop-multicast home-to-remote isid-list WORD<1-32>**
- **multi-area l2 redistribute snoop-multicast home-to-remote isid-list WORD<1-32> [enable]**
- **multi-area l2 redistribute snoop-multicast home-to-remote isid-list WORD<1-32> [route-map WORD<1-64>]**
- **no multi-area l2 redistribute snoop-multicast home-to-remote isid-list WORD<1-32>**
- **no multi-area l2 redistribute snoop-multicast home-to-remote isid-list WORD<1-32> [enable]**
- **no multi-area l2 redistribute snoop-multicast home-to-remote isid-list WORD<1-32> [route-map]**

Command Parameters

enables

Enables the Multi-area SPB layer 2 multicast snooping I-SID redistribution.

route-map WORD<1-64>

Specifies the name of the route map policy.

Default

The default is none.

Command Mode

IS-IS Router Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

multi-area l2 redistribute snoop-multicast i-sid <1-16777215>

Configures the Multi-area SPB layer 2 multicast snooping I-SID redistribution.

Syntax

- **default multi-area l2 redistribute snoop-multicast i-sid <1-16777215>**
- **default multi-area l2 redistribute snoop-multicast i-sid <1-16777215> [enable]**
- **default multi-area l2 redistribute snoop-multicast i-sid <1-16777215> [route-map]**

- **multi-area l2 redistribute snoop-multicast i-sid <1-16777215>**
- **multi-area l2 redistribute snoop-multicast i-sid <1-16777215> [enable]**
- **multi-area l2 redistribute snoop-multicast i-sid <1-16777215> [route-map WORD<1-64>]**
- **no multi-area l2 redistribute snoop-multicast i-sid <1-16777215>**
- **no multi-area l2 redistribute snoop-multicast i-sid <1-16777215> [enable]**
- **no multi-area l2 redistribute snoop-multicast i-sid <1-16777215> [route-map]**

Command Parameters

enable

Enables Multi-area SPB layer 2 multicast snooping I-SID redistribution.

route-map WORD<1-64>

Specifies the name of the route map policy.

Default

The default is none.

Command Mode

IS-IS Router Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

multi-area l2 redistribute snoop-multicast isid-list WORD<1-32>

Configures the Multi-area SPB layer 2 multicast snooping I-SID list redistribution.

Syntax

- **default multi-area l2 redistribute snoop-multicast isid-list WORD<1-32>**
- **default multi-area l2 redistribute snoop-multicast isid-list WORD<1-32> [enable]**
- **default multi-area l2 redistribute snoop-multicast isid-list WORD<1-32> [route-map]**
- **multi-area l2 redistribute snoop-multicast isid-list WORD<1-32>**

- **multi-area l2 redistribute snoop-multicast isid-list WORD<1-32> [enable]**
- **multi-area l2 redistribute snoop-multicast isid-list WORD<1-32> [route-map WORD<1-64>]**
- **no multi-area l2 redistribute snoop-multicast isid-list WORD<1-32>**
- **no multi-area l2 redistribute snoop-multicast isid-list WORD<1-32> [enable]**
- **no multi-area l2 redistribute snoop-multicast isid-list WORD<1-32> [route-map]**

Command Parameters

enable

Enables Multi-area SPB layer 2 multicast snooping I-SID list redistribution.

route-map WORD<1-64>

Specifies the name of the route map policy.

Default

The default is none.

Command Mode

IS-IS Router Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

multi-area l2 redistribute snoop-multicast remote-to-home i-sid <1-16777215>

Configures the Multi-area SPB layer 2 multicast snooping I-SID redistribution for remote to home direction.

Syntax

- **default multi-area l2 redistribute snoop-multicast remote-to-home i-sid <1-16777215>**
- **default multi-area l2 redistribute snoop-multicast remote-to-home i-sid <1-16777215> [enable]**
- **default multi-area l2 redistribute snoop-multicast remote-to-home i-sid <1-16777215> [route-map]**

- **multi-area l2 redistribute snoop-multicast remote-to-home i-sid <1-16777215>**
- **multi-area l2 redistribute snoop-multicast remote-to-home i-sid <1-16777215> [enable]**
- **multi-area l2 redistribute snoop-multicast remote-to-home i-sid <1-16777215> [route-map WORD<1-64>]**
- **no multi-area l2 redistribute snoop-multicast remote-to-home i-sid <1-16777215>**
- **no multi-area l2 redistribute snoop-multicast remote-to-home i-sid <1-16777215> [enable]**
- **no multi-area l2 redistribute snoop-multicast remote-to-home i-sid <1-16777215> [route-map]**

Command Parameters

enables

Enables the Multi-area SPB layer 2 multicast snooping I-SID redistribution.

route-map

Specifies the name of the route map policy.

Default

The default is none.

Command Mode

IS-IS Router Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

multi-area l2 redistribute snoop-multicast remote-to-home isid-list WORD<1-32>

Configures the Multi-area SPB layer 2 multicast snooping I-SID list redistribution for remote to home direction.

Syntax

- **default multi-area l2 redistribute snoop-multicast remote-to-home isid-list WORD<1-32>**
- **default multi-area l2 redistribute snoop-multicast remote-to-home isid-list WORD<1-32> [enable]**

- **default multi-area l2 redistribute snoop-multicast remote-to-home isid-list WORD<1-32> [route-map]**
- **multi-area l2 redistribute snoop-multicast remote-to-home isid-list WORD<1-32>**
- **multi-area l2 redistribute snoop-multicast remote-to-home isid-list WORD<1-32> [enable]**
- **multi-area l2 redistribute snoop-multicast remote-to-home isid-list WORD<1-32> [route-map WORD<1-64>]**
- **no multi-area l2 redistribute snoop-multicast remote-to-home isid-list WORD<1-32>**
- **no multi-area l2 redistribute snoop-multicast remote-to-home isid-list WORD<1-32> [enable]**
- **no multi-area l2 redistribute snoop-multicast remote-to-home isid-list WORD<1-32> [route-map]**

Command Parameters

enables

Enables the Multi-area SPB layer 2 multicast snooping I-SID redistribution.

route-map WORD<1-64>

Specifies the name of the route map policy.

Default

The default is none.

Command Mode

IS-IS Router Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

overload

Configure the overload condition. If the overload bit parameter is configured, the switch sets the overload bit in the Link State Packet (LSP). The setting affects Level 1 LSPs.

The overload parameter works in conjunction with the overload-on-startup parameter. When the overload-on-startup timer expires, the Shortest Path Bridging MAC (SPBM) node clears the overload bit and re-advertises its LSP.

When an LSP with an overload bit is received, the switch ignores the LSP in its SPF calculation. By default, overload is set to false. If overload is set to true, the switch cannot be a transit node, but it can still receive traffic destined to the switch.

Syntax

- **default overload**
- **no overload**
- **overload**

Default

The default is disabled.

Command Mode

IS-IS Router Configuration

overload-on-startup

Configure the Intermediate-System-to-Intermediate-System (IS-IS) overload-on-startup value in seconds.

Syntax

- **default overload-on-startup**
- **no overload-on-startup**
- **overload-on-startup <15-3600>**

Command Parameters

<15-3600>

Specifies the Intermediate-System-to-Intermediate-System (IS-IS) overload-on-startup value in seconds. The overload-on-startup value is used as a timer to control when to send out Link State Packets (LSPs) with the overload bit cleared after IS-IS startup.

Default

The default overload-on-startup value is 20 seconds.

Command Mode

IS-IS Router Configuration

psnp-interval

Configure the Partial Sequence Number Packets (PSNP) interval in seconds. This command is a system level parameter that applies to Level 1 PSNP generation on all interfaces.

Syntax

- **default psnp-interval**
- **psnp-interval <1-120>**

Command Parameters

<1-120>

Configures the interval, in seconds. This is a system level parameter that applies for Level 1 Partial Sequence Number Packet (PSNP) generation on all interfaces. A longer interval reduces overhead, while a shorter interval speeds up convergence.

Default

The default PSNP value is 2 seconds.

Command Mode

IS-IS Router Configuration

redistribute bgp (for IS-IS)

Control the redistribution of routes from the global router into the Shortest Path Bridging MAC (SPBM) Intermediate-System-to-Intermediate-System (IS-IS) domain.

Syntax

- **default redistribute bgp [enable] [metric] [metric-type] [route-map] [subnets] [tag]**
- **no redistribute bgp [enable] [metric] [metric-type] [route-map] [subnets] [tag]**
- **redistribute bgp [enable] [metric <0-65535>] [metric-type <external | internal>] [route-map WORD<0-64>] [subnets <allow | suppress>] [tag <1-4294967295>]**

Command Parameters

enable

Enables the redistribution of the BGP into the Shortest Path Bridging MAC (SPBM) network.

metric <0-65535>

Configures the metric (cost) to apply to redistributed routes. The default is 1.

metric-type <external | internal>

Configures the type of route to import into the BGP. The default is internal.

route-map WORD<0-64>

Configures the route policy to apply to redistributed routes.

subnets <allow | suppress>

Indicates whether the subnets are advertised individually or aggregated to their classful subnet. Choose allow to advertise the subnets individually with the learned or configured mask of the subnet. The default is allow.

tag <1-4294967295>

Applies a tag to routes that BGP redistribute to IS-IS. You can then configure router filtering to prevent tagged IS-IS routes from being redistributed back to BGP.

Default

By default, route redistribution is disabled.

Command Mode

IS-IS Router Configuration

Usage Guidelines



Caution

To use IS-IS Route Tagging on GRT IS-IS routes, you must also configure the metric-type as external. If you want to use IS-IS tags on GRT as internal routes, all Fabric nodes must be above a minimum software version. Any switch in the SPB Fabric that runs earlier software versions triggers an exception if you use metric type internal. To ensure this does not occur, if you attempt to configure a tag and the metric-type is not external, the switch reminds you to upgrade the software on all devices. You must ensure all devices in the network run the minimum required software.

For more information, see *Fabric Engine User Guide*.

redistribute direct (for IS-IS)

Control the redistribution of routes from the global router into the Shortest Path Bridging MAC (SPBM) Intermediate-System-to-Intermediate-System (IS-IS) domain.

Syntax

- **default redistribute direct enable**
- **default redistribute direct metric**
- **default redistribute direct metric-type**
- **default redistribute direct route-map**
- **default redistribute direct subnets**
- **no redistribute direct**
- **no redistribute direct enable**
- **no redistribute direct metric**
- **no redistribute direct metric-type**
- **no redistribute direct route-map**
- **no redistribute direct subnets**
- **redistribute direct**
- **redistribute direct enable**
- **redistribute direct metric <0-65535>**
- **redistribute direct metric-type external**
- **redistribute direct metric-type internal**
- **redistribute direct route-map WORD<0-64>**
- **redistribute direct subnets allow**
- **redistribute direct subnets suppress**

Command Parameters

enable

Enables route redistribution of the direct protocol. The prefix "default" before the command sets the isis redistribute direct enable to default.

metric <0-65535>

Configures the metric (cost) to apply to redistributed routes. The default is 1.

metric-type external

Configures the type of route to import into the protocol. The default is internal.

metric-type internal

Configures the type of route to import into the direct protocol. The prefix "default" before the command sets the isis redistribute metric-type to default. The default is internal.

route-map WORD<0-64>

Configures the route policy to apply to redistributed routes.

subnets allow

Indicates whether the subnets are advertised individually or aggregated to their classful subnet. Choose allow to advertise the subnets individually with the learned or configured mask of the subnet. The default is allow.

subnets suppress

Indicates whether the subnets are advertised individually or aggregated to their classful subnet. Choose allow to advertise the subnets individually with the learned or configured mask of the subnet. The default is allow.

Default

By default, route redistribution is disabled.

Command Mode

IS-IS Router Configuration

redistribute ospf (for IS-IS)

Control the redistribution of routes from the global router into the Shortest Path Bridging MAC (SPBM) Intermediate-System-to-Intermediate-System (IS-IS) domain.

Syntax

- **default redistribute ospf [enable] [metric] [metric-type] [route-map] [subnets] [tag]**
- **no redistribute ospf [enable] [metric] [metric-type] [route-map] [subnets] [tag]**
- **redistribute ospf [enable] [metric <0-65535>] [metric-type <external | internal>] [route-map WORD<0-64>] [subnets <allow | suppress>] [tag <1-4294967295>]**

Command Parameters

enable

Enables the redistribution of the OSPF protocol into the Shortest Path Bridging MAC (SPBM) network.

metric <0-65535>

Configures the metric (cost) to apply to redistributed routes. The default is 1.

metric-type <external | internal>

Configures the type of route to import into the protocol. The default is internal.

route-map WORD<0-64>

Configures the route policy to apply to redistributed routes.

subnets <allow | suppress>

Indicates whether the subnets are advertised individually or aggregated to their classful subnet. Choose allow to advertise the subnets individually with the learned or configured mask of the subnet. The default is allow.

tag <1-4294967295>

Applies a tag to routes that OSPF redistribute to IS-IS. You can then configure router filtering to prevent tagged IS-IS routes from being redistributed back to OSPF.

Default

By default, route redistribution is disabled.

Command Mode

IS-IS Router Configuration

Usage Guidelines



Caution

To use IS-IS Route Tagging on GRT IS-IS routes, you must also configure the metric-type as external. If you want to use IS-IS tags on GRT as internal routes, all Fabric nodes must be above a minimum software version. Any switch in the SPB Fabric that runs earlier software versions triggers an exception if you use metric type internal. To ensure this does not occur, if you attempt to configure a tag and the metric-type is not external, the switch reminds you to upgrade the software on all devices. You must ensure all devices in the network run the minimum required software.

For more information, see *Fabric Engine User Guide*.

redistribute rip (for IS-IS)

Control the redistribution of routes from the global router into the Shortest Path Bridging MAC (SPBM) Intermediate-System-to-Intermediate-System (IS-IS) domain.

Syntax

- **default redistribute rip enable**
- **default redistribute rip metric**
- **default redistribute rip metric-type**
- **default redistribute rip route-map**
- **default redistribute rip subnets**
- **no redistribute rip**
- **no redistribute rip enable**
- **no redistribute rip metric**

- **no redistribute rip metric-type**
- **no redistribute rip route-map**
- **no redistribute rip subnets**
- **redistribute rip**
- **redistribute rip enable**
- **redistribute rip metric <0-65535>**
- **redistribute rip metric-type external**
- **redistribute rip metric-type internal**
- **redistribute rip route-map WORD<0-64>**
- **redistribute rip subnets allow**
- **redistribute rip subnets suppress**

Command Parameters

enable

Enables route redistribution.

metric <0-65535>

Configures the metric (cost) to apply to redistributed routes. The default is 1.

metric-type external

Configures the type of route to import into the protocol. The default is internal.

metric-type internal

Configures the type of route to import into the protocol.

route-map WORD<0-64>

Configures the route policy to apply to redistributed routes.

subnets allow

Indicates whether the subnets are advertised individually or aggregated to their classful subnet. Choose allow to advertise the subnets individually with the learned or configured mask of the subnet. The default is allow.

subnets suppress

Indicates whether the subnets are advertised individually or aggregated to their classful subnet. Choose allow to advertise the subnets individually with the learned or configured mask of the subnet. The default is allow.

Default

By default, route redistribution is disabled.

Command Mode

IS-IS Router Configuration

redistribute static (for IS-IS)

Control the redistribution of routes from the global router into the Shortest Path Bridging MAC (SPBM) Intermediate-System-to-Intermediate-System (IS-IS) domain.

Syntax

- **default redistribute static enable**
- **default redistribute static metric**
- **default redistribute static metric-type**
- **default redistribute static route-map**
- **default redistribute static subnets**
- **no redistribute static**
- **no redistribute static enable**
- **no redistribute static metric**
- **no redistribute static metric-type**
- **no redistribute static route-map**
- **no redistribute static subnets**
- **redistribute static**
- **redistribute static enable**
- **redistribute static metric <0-65535>**
- **redistribute static metric-type external**
- **redistribute static metric-type internal**
- **redistribute static route-map WORD<0-64>**
- **redistribute static subnets allow**
- **redistribute static subnets suppress**

Command Parameters

enable

Enables route redistribution.

metric <0-65535>

Configures the metric (cost) to apply to redistributed routes. The default is 1.

metric-type external

Configures the type of route to import into the protocol. The default is internal.

metric-type internal

Configures the type of route to import into the protocol. The default is internal.

route-map WORD<0-64>

Configures the route policy to apply to redistributed routes.

subnets allow

Indicates whether the subnets are advertised individually or aggregated to their classful subnet. Choose allow to advertise the subnets individually with the learned or configured mask of the subnet. The default is allow.

subnets suppress

Indicates whether the subnets are advertised individually or aggregated to their classful subnet. Choose allow to advertise the subnets individually with the learned or configured mask of the subnet. The default is allow.

Default

By default, route redistribution is disabled.

Command Mode

IS-IS Router Configuration

retransmit-lsp-interval

Configure the minimum time between retransmission of a Link State Packet (LSP). This defines how fast the switch resends the same LSP. This is a system level parameter that applies for Level 1 retransmission of LSPs.

Syntax

- **default retransmit-lsp-interval**
- **no retransmit-lsp-interval**
- **retransmit-lsp-interval <1-300>**

Command Parameters

<1-300>

Specifies the minimum time between retransmission of a Link State Packet (LSP). This defines how fast the switch resends the same LSP. This is a system level parameter that applies for Level1 retransmission of LSPs.

Default

The default is 5 seconds.

Command Mode

IS-IS Router Configuration

spbm <1-100>

Create the Shortest Path Bridging MAC (SPBM) instance globally. Only one SPBM instance is supported. Use the no form of the command to delete the instance globally.

Syntax

- **no spbm <1-100>**
- **spbm <1-100>**

Command Parameters

<1-100>

Specifies the Shortest Path Bridging MAC (SPBM) instance ID. Creates the SPBM instance. Only one SPBM instance is supported.

Default

None

Command Mode

IS-IS Router Configuration

spbm <1-100> b-vid

Add the backbone VLAN (B-VLAN) to the Shortest Path Bridging MAC (SPBM) instance, globally. You can configure a maximum of two B-VLANs. If you add only one B-VLAN to the SPBM instance, it becomes the primary B-VLAN. If you configure two B-VLANs, you must configure one as the primary B-VLAN. Use the no format to remove a B-VLAN from the global SPBM instance.

Syntax

- **no spbm <1-100> b-vid List of VLAN Ids {vlan-id[-vlan-id][,...]}**
- **no spbm <1-100> b-vid List of VLAN Ids {vlan-id[-vlan-id][,...]} primary <1-4059>**
- **spbm <1-100> b-vid List of VLAN Ids {vlan-id[-vlan-id][,...]}**
- **spbm <1-100> b-vid List of VLAN Ids {vlan-id[-vlan-id][,...]} primary <1-4059>**

Command Parameters

{vlan-id[-vlan-id][,...]}

Specifies the VLANs to add to the Shortest Path Bridging MAC (SPBM) instance as Backbone VLANs (B-VLANs). Sets the IS-IS SPBM instance data VLANs.

<1-100>

Specifies the Shortest Path Bridging MAC (SPBM) instance ID.

primary *<1-4059>*

Specifies the primary B-VLAN by VLAN ID.

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

IS-IS Router Configuration

spbm <1-100> ip

Configure Shortest Path Bridging MAC (SPBM) IP shortcuts.

Syntax

- **default spbm <1-100> ip enable**
- **no spbm <1-100> ip enable**
- **spbm <1-100> ip enable**

Command Parameters

<1-100>

Specifies the Shortest Path Bridging MAC (SPBM) instance ID.

ip enable

Enables Shortest Path Bridging MAC (SPBM) IP shortcuts.

Default

The default is disabled.

Command Mode

IS-IS Router Configuration

spbm <1-100> ipv6

Configure Shortest Path Bridging MAC (SPBM) IPv6 shortcuts.

Syntax

- **default spbm <1-100> ipv6 enable**
- **no spbm <1-100> ipv6 enable**
- **spbm <1-100> ipv6 enable**

Command Parameters

<1-100>

Specifies the Shortest Path Bridging MAC (SPBM) instance ID.

enable

Enables Shortest Path Bridging MAC (SPBM) IPv6 shortcuts.

Default

The default is disabled.

Command Mode

IS-IS Router Configuration

spbm <1-100> lsdb-trap

Enable a trap when the Shortest Path Bridging MAC (SPBM) Link State Database (LSDB) changes.

Syntax

- **default spbm <1-100> lsdb-trap enable**
- **no spbm <1-100> lsdb-trap enable**
- **spbm <1-100> lsdb-trap enable**

Command Parameters

<1-100>

Specifies the Shortest Path Bridging MAC (SPBM) instance ID.

enable

Enables a trap when the Shortest Path Bridging MAC (SPBM) Link State Database (LSDB) changes.

Default

The default is disabled.

Command Mode

IS-IS Router Configuration

spbm <1-100> multicast

Enables SPBM multicast globally.

Syntax

- **default spbm <1-100> multicast enable**
- **no spbm <1-100> multicast enable**
- **spbm <1-100> multicast enable**

Command Parameters

<1-100>

Specifies the Shortest Path Bridging MAC (SPBM) instance ID.

enable

Enables SPBM multicast globally.

Default

The default is disabled.

Command Mode

IS-IS Router Configuration

spbm <1-100> multicast fwd-cache-timeout

Configures the timeout value for the Global Router.

Syntax

- **default spbm <1-100> multicast fwd-cache-timeout**
- **no spbm <1-100> multicast fwd-cache-timeout**
- **spbm <1-100> multicast fwd-cache-timeout <10-432000>**

Command Parameters

<10-432000>

fwd-cache-timeout value in seconds.

<1-100>

Specifies the Shortest Path Bridging MAC (SPBM) instance ID. Creates the SPBM instance. In this release only one SPBM instance is supported.

Default

The default is 210 seconds.

Command Mode

IS-IS Router Configuration

spbm <1-100> multicast spb-pim-gw controller

Configures SPB-PIM gateway controller.

Syntax

- **default spbm <1-100> multicast spb-pim-gw controller enable**
- **no spbm <1-100> multicast spb-pim-gw controller enable**
- **spbm <1-100> multicast spb-pim-gw controller enable**

Command Parameters

enable

Enables the SPB-PIM Gateway Controller.

Default

The default is disabled.

Command Mode

IS-IS Router Configuration

spbm <1-100> nick-name (for IS-IS)

Configure a global nickname for the Shortest Path Bridging MAC (SPBM) instance. The system uses the nickname to calculate the multicast address for the node.

Syntax

- **default spbm <1-100> nick-name**
- **no spbm <1-100> nick-name**

- **spbm <1-100> nick-name x.xx.xx - 2.5 bytes**

Command Parameters

<1-100>

Specifies the SPBM instance ID.

nick-name x.xx.xx - 2.5 bytes

Specifies the system nickname (2.5 bytes in the format <x.xx.xx>).

Default

By default, no nickname exists.

Command Mode

IS-IS Router Configuration

spbm <1-100> routed-multicast-ttl1-bridging enable

Configures routed SPB IP Multicast TTL1 bridging.

Syntax

- **default spbm <1-100> routed-multicast-ttl1-bridging enable**
- **no spbm <1-100> routed-multicast-ttl1-bridging enable**
- **spbm <1-100> routed-multicast-ttl1-bridging enable**

Command Parameters

spbm <1-100>

Specifies the Shortest Path Bridging MAC (SPBM) instance ID.

Default

The default is disabled.

Command Mode

IS-IS Router Configuration

Usage Guidelines

Disable IP Multicast before you use this command.

You cannot configure TTL handling for bridged traffic with routed SPB IP Multicast on a Multi-area boundary node. You cannot enable TTL handling if **router isis remote** is administratively enabled. You cannot enable **router isis remote** if TTL handling is already configured.

spbm <1-100> smlt-peer-system-id

Configure the system ID of the interswitch trunk (IST) peer, so that if it goes down, the local peer can take over forwarding for the failed peer. You must configure this command to use Shortest Path Bridging MAC (SPBM) in a Split MultiLink Trunking (SMLT) environment. The device with the lower system ID is the primary device.

Syntax

- **spbm <1-100> smlt-peer-system-id xxxx.xxxx.xxxx - 6 bytes**

Command Parameters

<1-100>

Specifies the SPBM instance ID. SMLT peer system ID is part of the required configuration. You must configure the SMLT peer system ID as the nodal MAC of the peer device. In the Intermediate-System-to-Intermediate-System (IS-IS) network, the nodal MAC of devices should be eight apart from each other.

xxxx.xxxx.xxxx - 6 bytes

Specifies the nodal MAC of the peer device as the system ID. Nodal MACs of devices in the Intermediate-System-to-Intermediate-System (IS-IS) network must be 8 apart from each other.

Split MultiLink Trunking (SMLT) peer system ID is part of the required configuration. If SMLT virtual Backbone MAC (BMAC) is not configured, it is derived from the configured SMLT peer system ID and the nodal MAC of the device (IS-IS system ID).

SMLT split Backbone Edge Bridge (BEB) is also derived from the SMLT peer system ID and nodal MAC of the device.

The device with the lower system ID is primary, the device with the higher system ID is secondary.

Default

None

Command Mode

IS-IS Router Configuration

spbm <1-100> smlt-virtual-bmac

Configure the virtual Backbone MAC (BMAC) address, which is shared and advertised by both peers. Configuration of this command is optional.

Syntax

- **spbm <1-100> smlt-virtual-bmac 0x00:0x00:0x00:0x00:0x00:0x00**

Command Parameters

<1-100>

Specifies the SPBM instance ID.

0x00:0x00:0x00:0x00:0x00:0x00

Specifies the virtual MAC address. SMLT virtual BMAC is the optional configuration. If SMLT virtual BMAC is not configured, the system derives SMLT virtual BMAC from the configured SMLT peer system ID and the nodal MAC of the device (IS-IS system ID).

The system compares the nodal MAC of the device with the SMLT peer system ID configured and takes the small one, plus 0x01, as the SMTL virtual BMAC. The system also derives SMLT split BEB from the SMLT peer system ID and nodal MAC of the device.

The device with the lower system ID is primary, the device with the higher system ID is secondary.

Default

None

Command Mode

IS-IS Router Configuration

spbm <1-100> stp-multi-homing

Sets the MSTP-Fabric Connect Multi Homing support on the switch.

Note

You must configure the MSTP global version as *mstp* to enable MSTP-Fabric Connect Multi Homing.

Syntax

- **default spbm <1-100> stp-multi-homing enable**
- **no spbm <1-100> stp-multi-homing enable**

- **spbm <1-100> stp-multi-homing enable**

Command Parameters

enable

Enables MSTP-Fabric Connect Multi Homing on the specific SPBM instance.

Default

Disabled

Command Mode

IS-IS Router Configuration

spf-delay

Configure the delay, in milliseconds, to pace successive Shortest Path First (SPF) runs. The timer prevents more than two SPF runs from being scheduled back-to-back. The mechanism for pacing SPF allows two back-to-back SPF runs.

Syntax

- **default spf-delay**
- **no spf-delay**
- **spf-delay <0-5000>**

Command Parameters

<0-5000>

Configures the delay, in milliseconds.

Default

The default is 100 milliseconds.

Command Mode

IS-IS Router Configuration

sys-name

Configure the name for the system.

Syntax

- **default sys-name**
- **no sys-name**
- **sys-name WORD<0-255>**

Command Parameters

WORD<0-255>

Specifies the system name.

Default

By default, the system name is the host name at the system level.

Command Mode

IS-IS Router Configuration

system-id (for IS-IS)

Configure a system ID. You must configure a system ID before you enable IS-IS. You cannot delete the system ID but you can change it if you first disable IS-IS.

Syntax

- **default system-id**
- **no system-id**
- **system-id xxxx.xxxx.xxxx - 6 bytes**
- **system-id xxxx.xxxx.xxxx - 6 bytes**

Command Parameters

xxxx.xxxx.xxxx - 6 bytes

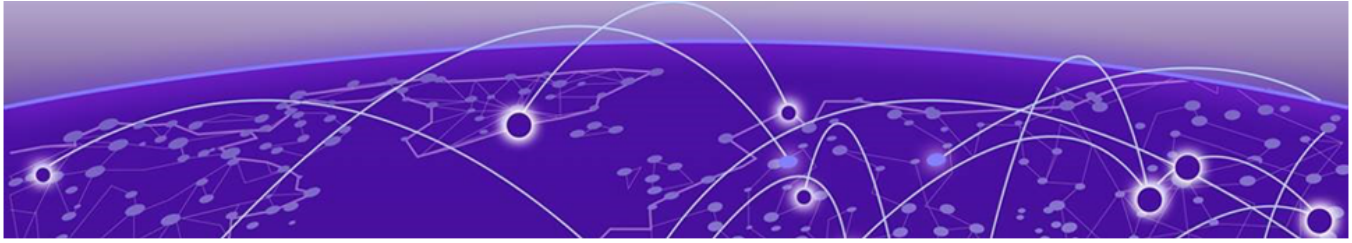
Specifies the system ID in 6 octets.

Default

The default system ID is the node Backbone MAC.

Command Mode

IS-IS Router Configuration



IS-IS Router Remote Configuration

The following topics document commands available in IS-IS Router Remote Configuration mode of the command line interface (CLI).

area-name (for remote IS-IS)

Configures the area name for the remote area.

Syntax

- **area-name WORD<0-255>**
- **no area-name**
- **default area-name**

Command Parameters

WORD<0-255>

Specifies the area name.

Default

The default value is area-manual-area, where manual-area represents the remote IS-IS manual-area value that you configure.

Command Mode

IS-IS Router Remote Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

area-vnode nick-name (for remote IS-IS)

Configures the remote IS-IS Multi-area SPB virtual node nickname.

Syntax

- **area-vnode nick-name <x.xx.xx>**
- **default area-vnode nick-name**
- **no area-vnode nick-name**

Command Parameters

<x.xx.xx>

Specifies the nickname for the Multi-area SPB virtual node. The value is 2.5 bytes.

Default

The default is none.

Command Mode

IS-IS Router Remote Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

area-vnode system-id (for remote IS-IS)

Configures the remote IS-IS Multi-area SPB virtual node system ID.

Syntax

- **area-vnode system-id xxxx.xxxx.xxxx**
- **default area-vnode system-id**
- **no area-vnode system-id**

Command Parameters

xxxx.xxxx.xxxx

Specifies the IS-IS Multi-area SPB virtual node system ID.

Default

None

Command Mode

IS-IS Router Remote Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

area-vnode sys-name (for remote IS-IS)

Configures the remote IS-IS Multi-area SPB virtual node system name.

Syntax

- **area-vnode sys-name WORD<0-255>**
- **default area-vnode sys-name**
- **no area-vnode sys-name**

Command Parameters

WORD<0-255>

Specifies the remote IS-IS Multi-area SPB virtual node system name.

Default

None

Command Mode

IS-IS Router Remote Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

manual-area (for remote IS-IS)

Configure a remote Intermediate-System-to-Intermediate-System (IS-IS) manual area, 1-13 bytes in the format <xx.xxx.xxx...xxxx>. You must configure a manual area to use the remote IS-IS.

Syntax

- **manual-area xx.xxxx.xxxx...xxxx**

- **no manual-area xx.xxxx.xxxx...xxxx**

Command Parameters

xx.xxxx.xxxx...xxxx

Configures the manual area in a size up to 13 octets. For a remote Intermediate-System-to-Intermediate-System (IS-IS) to operate, you must configure at least one area.

Default

The default is none.

Command Mode

IS-IS Router Remote Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

spbm <1-100> nick-name (for remote IS-IS)

Configures a nickname for the remote Shortest Path Bridging MAC (SPBM) instance. The system uses the nickname to calculate the multicast address for the nodes.

Syntax

- **default spbm <1-100> nick-name**
- **no spbm <1-100> nick-name**
- **spbm <1-100> nick-name x.xx.xx**

Command Parameters

<1-100>

Specifies the SPBM instance ID.

nick-name x.xx.xx

Specifies the system nickname (2.5 bytes in the format <x.xx.xx>).

Default

By default, no nickname exists.

Command Mode

IS-IS Router Remote Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

system-id (for remote IS-IS)

Configures a system ID. You must configure a system ID before you enable remote IS-IS. You cannot delete the system ID but you can change it if you first disable remote IS-IS.

Syntax

- **default system-id**
- **no system-id**
- **system-id xxxx.xxxx.xxxx**

Command Parameters

xxxx.xxxx.xxxx

Specifies the system ID in 6 octets.

Default

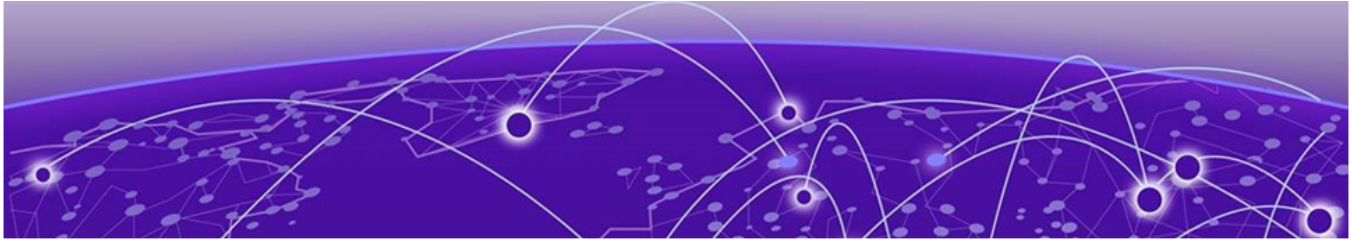
None

Command Mode

IS-IS Router Remote Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.



Logical Interface Configuration

The following topics document commands available in Logical Interface Configuration mode of the command line interface (CLI).

bfd enable

Enable Bidirectional Forwarding Detection (BFD) on a logical interface.

Syntax

- **bfd enable**
- **no bfd enable**

Default

None

Command Mode

Logical Interface Configuration

isis enable

Create an IS-IS circuit and interface on the selected logical interface.

Syntax

- **default isis enable**
- **isis**
- **isis enable**
- **no isis**
- **no isis enable**

Default

None

Command Mode

Logical Interface Configuration

isis hello-auth

Specify the authentication type used for IS-IS hello packets on the logical interface. The type can be one of the following: none, hmac-md5, or hmac-sha-256.

Syntax

- **default isis hello-auth**
- **isis hello-auth type { none | simple | hmac-md5 | hmac-sha-256 }**
- **isis hello-auth type { none | simple | hmac-md5 | hmac-sha-256 } key WORD<1-16>**
- **isis hello-auth type { none | simple | hmac-md5 | hmac-sha-256 } key WORD<1-16> key-id <1-255>**
- **no isis hello-auth**

Command Parameters

key WORD<1-16>

Specifies the authentication key (password) used by the receiving router to verify the packet.

key-id <1-255>

Specifies the optional key ID.

type { none | simple | hmac-md5 | hmac-sha-256}

Specifies the authentication type used for IS-IS hello packets on the interface. The type can be one of the following: none, simple, hmac-md5, or hmac-sha-256. The default type is none. Use the no or default options to set the hello-auth type to none.

- If simple is selected, you can also specify a key value. Simple password authentication uses a text password in the transmitted packet. The receiving router uses an authentication key (password) to verify the packet.
- If hmac-md5 is selected, you can also specify a key value and key-id. MD5 authentication creates an encoded checksum in the transmitted packet. The receiving router uses an authentication key (password) to verify the MD5 checksum of the packet.
- If hmac-sha-256 is selected, you can also specify a key value and key-id. With SHA-256 authentication, the switch adds an HMAC-SHA256 digest to each Hello packet. The switch that receives the Hello packet computes the digest of the packet and compares it with the received digest. If the digests match, the packet is accepted. If the digests do not match, the receiving switch discards the packet.

Default

The default is no authentication type (none).

Command Mode

Logical Interface Configuration

isis l1-dr-priority

Configure the Level 1 IS-IS designated router priority to the specified value.

Syntax

- **default isis l1-dr-priority**
- **isis l1-dr-priority <0-127>**
- **no isis l1-dr-priority**

Command Parameters

<0-127>

Configures the Level 1 IS-IS designated router priority to the specified value.

Default

The default Level 1 designated router priority value is 64.

Command Mode

Logical Interface Configuration

isis l1-hello-interval

Configure the hello interval to change how often hello packets are sent out from an interface level.

Syntax

- **default isis l1-hello-interval**
- **isis l1-hello-interval <1-600>**
- **no isis l1-hello-interval**

Command Parameters

<1-600>

Configures the Level 1 hello interval.

Default

The default Level 1 hello interval value is 9 seconds.

Command Mode

Logical Interface Configuration

isis l1-hello-multiplier

Configure the hello multiplier to specify how many hellos the switch must miss before it considers the adjacency with a neighboring switch down.

Syntax

- **default isis l1-hello-multiplier**
- **isis l1-hello-multiplier <1-600>**
- **no isis l1-hello-multiplier**

Command Parameters

<1-600>

Configures the Level 1 hello multiplier.

Default

The default Level 1 hello-multiplier value is 3.

Command Mode

Logical Interface Configuration

isis mtu

Configures the Maximum Transmission Unit (MTU) for IS-IS packets that use this logical interface.

Syntax

- **isis mtu <750-1600>**
- **default isis mtu**

Command Parameters

<750-1600>

The maximum IS-IS packet size in bytes.

Default

The default is 1600 bytes.

Command Mode

Logical Interface Configuration

Usage Guidelines

This command is available for FE-IP deployments only.

isis spbm

Enable the SPBM instance on the logical interface.

Syntax

- **default isis spbm <1-100> interface-type**
- **default isis spbm <1-100> l1-metric**
- **isis spbm <1-100>**
- **isis spbm <1-100> interface-type { broadcast | pt-pt }**
- **isis spbm <1-100> l1-metric { <1-16777215> | auto }**
- **no isis spbm <1-100>**
- **no isis spbm <1-100> interface-type**
- **no isis spbm <1-100> l1-metric**

Command Parameters

<1-100>

Specifies the SPBM instance ID.

interface-type { broadcast | pt-pt }

Configures the SPBM instance interface type.

l1-metric { <1-16777215> | auto }

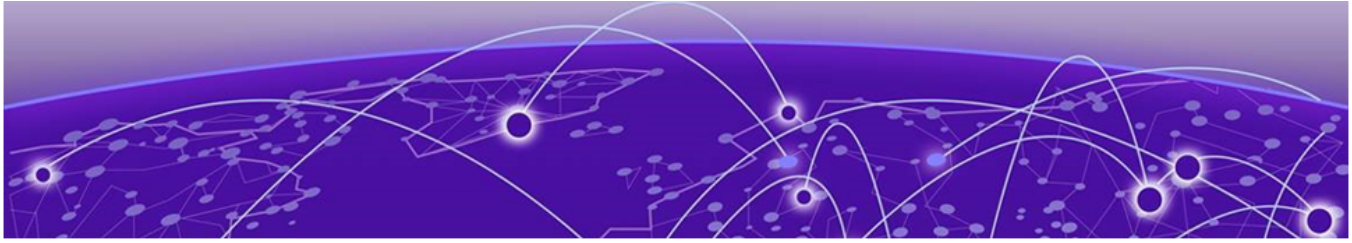
Manually configure the cost for the remote SPBM instance or automatically assign the inverse of the port speed as the cost. The default is **auto**.

Default

None

Command Mode

Logical Interface Configuration



Loopback Interface Configuration

The following topics document commands available in Loopback Interface Configuration mode of the command line interface (CLI).

ip address (loopback)

Configure a circuitless IP interface (CLIP) when you want to provide a virtual interface that is not associated with a physical port. You can use a CLIP interface to provide uninterrupted connectivity to your switch.

Syntax

- **ip address [<1-256>] {<A.B.C.D/X> | <A.B.C.D> <A.B.C.D>} [name WORD<0-64>] [multi-area-virtual-link <home | remote>] [vrf WORD<1-16> | vrf WORD<1-16> unrestricted]**
- **no ip address [<1-256>] {A.B.C.D} [name] [vrf WORD<1-16>]**

Command Parameters

<1-256>

Specifies the interface identification number for the circuitless IP (CLIP).

{A.B.C.D/X}

Specifies the IP address and subnet mask.

{A.B.C.D} {A.B.C.D}

Specifies the IP address and subnet mask.

multi-area-virtual-link <home | remote>

Specifies that the source IP address is used for a Mulit-area virtual NNI link and specifies the transport area.

name WORD<0-64>

Specifies a name associated with the IP address.

unrestricted

Specifies that the interface belongs to the unrestricted segment of a Segmented VRF. If you omit this parameter, the interface is part of the trusted segment and is only accessible from hosts in the trusted and unrestricted segments. Use the *unrestricted* parameter to make the interface accessible from hosts in all three segments. The default is trusted.

vrf WORD<1-16>

Specifies an associated VRF by name.

Default

None

Command Mode

Loopback Interface Configuration

Usage Guidelines

The *multi-area-virtual-link <home | remote>* parameter does not apply to all platforms. For feature support information, see *Fabric Engine and VOSS Feature Matrix*.

Note

If you do not assign a name to the loopback interface when you configure virtual NNI links for Multi-Area boundary nodes, the system auto-generates the name and displays the name as `Virtual-link`.

Segmented VRFs are not supported on all platforms. For feature support information, see *Fabric Engine and VOSS Feature Matrix*.

ip area (loopback)

Designate an area for the circuitless IP (CLIP) interface.

Syntax

- **default ip area [<1-256>] [vrf WORD<1-16>]**
- **ip area [<1-256>] {A.B.C.D} [vrf WORD<1-16>**
- **no ip area [<1-256>] [vrf WORD<1-16>]**

Command Parameters

{A.B.C.D}

Specifies the IP address of the OSPF area that is associated with the CLIP.

<1-256>

Specifies the interface identification number for the CLIP.

vrf WORD<1-16>

Specifies an associated VRF by name.

Default

None

Command Mode

Loopback Interface Configuration

ip bfd (for a loopback)

Enable and configure Bidirectional Forwarding Detection (BFD) on a loopback interface.

Syntax

- **default ip bfd enable**
- **default ip bfd interval**
- **default ip bfd min-rx**
- **default ip bfd multiplier**
- **ip bfd enable**
- **ip bfd interval <100-65335>**
- **ip bfd min-rx <100-65335>**
- **ip bfd multiplier <1-20>**
- **ip bfd loopback <1-256>**
- **no ip bfd enable**
- **no ip bfd loopback**

Command Parameters

enable

Enable BFD on a loopback.

interval

Specifies the transmit interval in milliseconds. The default is 200 ms. The minimum value for the transmit interval is 100 ms. You can configure a maximum of 4 BFD sessions with the minimum value for the transmit interval. You can configure the remaining BFD sessions with a transmit interval that is greater than or equal to the 200 ms default value.

min_rx

Specifies the receive interval in milliseconds. The default is 200 ms. The minimum value for the receive interval is 100 ms. You can configure a maximum of 4 BFD sessions with the minimum value for the receive interval. You can configure the remaining BFD sessions with a receive interval that is greater than or equal to the 200 ms default value.

multiplier

Specifies the multiplier used to calculate the amount of time BFD waits before it declares a receive timeout. The default is 3. If you configure the transmit interval or the receive interval as 100 ms, you must configure a value of 4 or greater for the multiplier.

Default

The default is disabled.

Command Mode

Loopback Interface Configuration

Usage Guidelines

This command is not supported on all hardware platforms. For information about feature support, see *Fabric Engine User Guide*.

ip dhcp-relay (for loopback)

Configure Dynamic Host Configuration Protocol (DHCP) Relay on an interface. The command no ip dhcp-relay disables DHCP Relay but does not delete the DHCP entry.

Syntax

- **default ip dhcp-relay fwd-path {A.B.C.D} {A.B.C.D}**
- **default ip dhcp-relay fwd-path {A.B.C.D} {A.B.C.D} mode**
- **ip dhcp-relay fwd-path {A.B.C.D} {A.B.C.D}**
- **ip dhcp-relay fwd-path {A.B.C.D} {A.B.C.D} disable**
- **ip dhcp-relay fwd-path {A.B.C.D} {A.B.C.D} enable**
- **ip dhcp-relay fwd-path {A.B.C.D} {A.B.C.D} mode { bootp | bootp_dhcp | dhcp }**
- **no ip dhcp-relay fwd-path {A.B.C.D} {A.B.C.D}**
- **no ip dhcp-relay fwd-path {A.B.C.D} {A.B.C.D} enable**

Command Parameters

{A.B.C.D} {A.B.C.D}

The first IP address is the IP address of the dhcp-relay agent, while the second one is the IP address of the server.

<bootp|dhcp|bootp_dhcp>

Configures DHCP mode to forward BootP messages only, DHCP messages only, or both. The default is both.

Default

None

Command Mode

Loopback Interface Configuration

ip ipsec enable (for a loopback interface)

Enable Internet Protocol Security (IPsec) for IPv4 on a loopback interface.

Syntax

- **default ip ipsec enable**
- **ip ipsec enable**
- **no ip ipsec enable**

Default

The default is disabled.

Command Mode

Loopback Interface Configuration

ip ipsec policy (for a loopback interface)

Link an Internet Protocol Security (IPsec) IPv4 policy to a loopback interface.

Syntax

- **default ip ipsec policy WORD<1-32>**
- **ip ipsec policy WORD<1-32>**
- **ip ipsec policy WORD<1-32> dir both**
- **ip ipsec policy WORD<1-32> dir in**
- **ip ipsec policy WORD<1-32> dir out**
- **no ip ipsec policy WORD<1-32> dir both**
- **no ip ipsec policy WORD<1-32> dir in**
- **no ip ipsec policy WORD<1-32> dir out**

Command Parameters

dir <both|in|out>

Specifies the direction to which IPsec applies. Both specifies both ingress and egress traffic, in specifies ingress traffic, and out specifies egress traffic. By default, the direction is both.

WORD<1-32>

Specifies the IPsec policy name.

Default

None

Command Mode

Loopback Interface Configuration

ip ospf (loopback)

Enable OSPF for the circuitless IP (CLIP) interface.

Syntax

- **default ip ospf [<1-256>] [vrf WORD<1-16>**
- **ip ospf [<1-256>] [vrf WORD<1-16>]**
- **no ip ospf [<1-256>] [vrf WORD<1-16>]**

Command Parameters

<1-256>

Specifies the interface identification number for the CLIP.

vrf WORD<1-16>

Specifies an associated VRF by name.

Default

The default is disabled.

Command Mode

Loopback Interface Configuration

ip pim (loopback)

Enable PIM for the circuitless IP (CLIP) interface.

Syntax

- **default ip pim**
- **default ip pim <1-256>**
- **default ip pim <1-256> bsr-candidate vrf WORD<1-16>**
- **default ip pim bsr-candidate**
- **default ip pim bsr-candidate vrf WORD<1-16>**
- **default ip pim vrf WORD<1-16>**
- **ip pim**
- **ip pim <1-256>**
- **ip pim <1-256> bsr-candidate preference <0-255> vrf WORD<1-16>**
- **ip pim bsr-candidate preference <0-255>**
- **ip pim bsr-candidate preference <0-255> vrf WORD<1-16>**
- **ip pim vrf WORD<1-16>**
- **no ip pim**
- **no ip pim <1-256>**
- **no ip pim <1-256> bsr-candidate vrf WORD<1-16>**
- **no ip pim bsr-candidate**
- **no ip pim bsr-candidate vrf WORD<1-16>**
- **no ip pim vrf WORD<1-16>**

Command Parameters

<0-255>

Specifies the preference value.

<1-256>

Specifies the interface ID.

bsr-candidate preference <0-255>

Enables the CLIP interface as a candidate bootstrap router and configure a preference value. The C-BSR with the highest BSR preference and address is the preferred BootStrap Router (BSR).

vrf WORD<1-16>

Specifies the VRF name.

Default

The default is -1, which indicates that the current interface is not a C-BSR.

Command Mode

Loopback Interface Configuration

ipv6 interface address (loopback)

Create an IPv6 loopback interface address.

Syntax

- **ipv6 interface address WORD<0-255>**
- **no ipv6 interface address WORD<0-255>**

Command Parameters

WORD<0-255>

Assigns an IPv6 address to the Loopback Interface.

Default

None

Command Mode

Loopback Interface Configuration

ipv6 ipsec enable (for a loopback interface)

Enable Internet Protocol Security (IPsec) for IPv6 on a loopback interface.

Syntax

- **default ipv6 ipsec enable**
- **ipv6 ipsec enable**
- **no ipv6 ipsec enable**

Default

The default is disabled.

Command Mode

Loopback Interface Configuration

ipv6 ipsec policy (for a loopback interface)

Link an Internet Protocol Security (IPsec) IPv6 policy to a loopback interface.

Syntax

- **default ipv6 ipsec policy WORD<1-32>**
- **ipv6 ipsec policy WORD<1-32>**
- **ipv6 ipsec policy WORD<1-32> dir both**
- **ipv6 ipsec policy WORD<1-32> dir in**
- **ipv6 ipsec policy WORD<1-32> dir out**
- **no ipv6 ipsec policy WORD<1-32> dir both**
- **no ipv6 ipsec policy WORD<1-32> dir in**
- **no ipv6 ipsec policy WORD<1-32> dir out**

Command Parameters

dir <both|in|out>

Specifies the direction to which IPsec applies. Both specifies both ingress and egress traffic, in specifies ingress traffic, and out specifies egress traffic. By default, the direction is both.

WORD<1-32>

Specifies the IPsec policy name.

Default

None

Command Mode

Loopback Interface Configuration

ipv6 ospf

Creates an Open Shortest Path First Version 3 (OSPFv3) instance on a loopback interface for a specific area from the associated Virtual Router Forwarding (VRF) list and enables the OSPFv3 circuitless IP (CLIP) instance.

Syntax

- **ipv6 ospf <1-256> area {A.B.C.D}**
- **ipv6 ospf <1-256> enable**
- **no ipv6 ospf <1-256>**
- **no ipv6 ospf <1-256> enable**

Command Parameters

<1-256>

Specifies the interface identification for the CLIP.

area {A.B.C.D}

Specifies the OSPFv3 identification number for the area, typically formatted as an IP address.

enable

Enables the OSPFv3 CLIP instance.

Default

The default is none.

Command Mode

Loopback Interface Configuration

migrate-to-mgmt (for a loopback interface)

You can use this command to move an existing Segmented Management Instance CLIP interface to a different VRF. Save the configuration. During a reboot the migration configuration moves the selected interface to the management stack for use with management applications.

Syntax

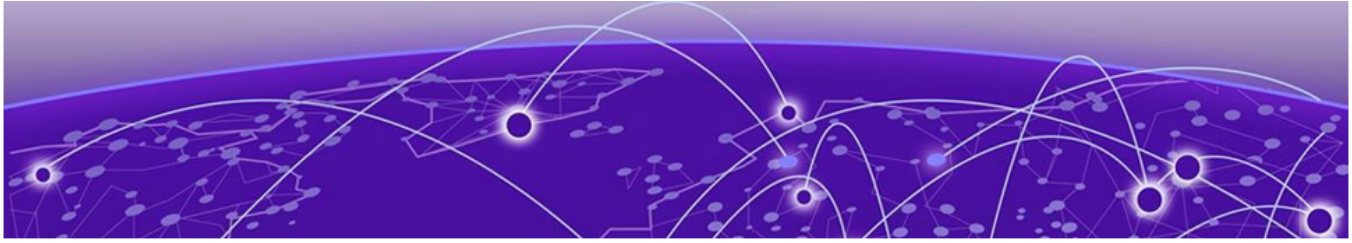
- **migrate-to-mgmt**
- **no migrate-to-mgmt**

Default

None

Command Mode

Loopback Interface Configuration



Management Instance Configuration

The following topics document commands available in Management Instance Configuration mode of the command line interface (CLI).

convert (for a Management CLIP)

Converts existing configuration for Management Instance CLIP attributes.

Syntax

- **convert [ip <A.B.C.D A.B.C.D | A.B.C.D/X>] [rollback <0 | 30-3600>]**
- **convert vrf WORD <0-16> [rollback <0 | 30-3600>]**

Command Parameters

ip <A.B.C.D A.B.C.D | A.B.C.D/X>

Specifies the IP address and subnet mask.

rollback <0 | 30-3600>

Specifies the time in seconds between when the command is issued and when the command changes will be undone. The default is 120 seconds. To disable the rollback, enter 0.

vrf WORD<0-16>

Specifies the VRF name.

Default

None

Command Mode

Management Instance Configuration

convert (for a Management OOB)

Converts existing configuration for Management Instance OOB attributes.

Syntax

- **convert [ip <A.B.C.D A.B.C.D | A.B.C.D/X>] [rollback <0 | 30-3600>]**
- **convert [gateway <A.B.C.D>] [rollback <0 | 30-3600>]**

Command Parameters

gateway <AB.C.D>

Specifies the gateway IP address.

ip <A.B.C.D A.B.C.D | A.B.C.D/X>

Specifies the IP address and subnet mask.

rollback <0 | 30-3600>

Specifies the time in seconds between when the command is issued and when the command changes will be undone. The default is 120 seconds. To disable the rollback, enter 0.

<A.B.C.D>

Specifies the gateway IP address.

Default

None

Command Mode

Management Instance Configuration

convert (for a Management VLAN)

Changes parameters for an existing non-routed Management VLAN, or converts a routed Management VLAN to non-routing mode. If you use the **convert** command without the optional parameters, it converts a routed Management VLAN to non-routed Management VLAN, preserving all parameters.

Syntax

- **convert [ip <A.B.C.D A.B.C.D | A.B.C.D/X>] [gateway <A.B.C.D>] [ipv6 WORD<0-255>] [gateway-v6 WORD<0-255>] [rollback <0 | 30-3600>]**
- **convert [i-sid <1-16777215>] [rollback <0 | 30-3600>]**
- **convert [vlan <1-4059>] [ports-tagged {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}] [rollback <0 | 30-3600>]**]
- **convert [vlan <1-4059>] [ports-untagged {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}] [rollback <0 | 30-3600>]**

- **convert [vlan <1-4059>] [rollback <0 | 30-3600>]**
- **convert [vrf WORD <1-16>] [rollback <0 | 30-3600>]**

Command Parameters

gateway <A.B.C.D>

Specifies the gateway IP address.

gateway-v6 WORD<0-255>

Specifies the gateway IPv6 address.

ip <A.B.C.D A.B.C.D | A.B.C.D/X>

Specifies the IP address and subnet mask.

ipv6 WORD<0-255>

Specifies the IPv6 address.

i-sid <1-16777215>

Specifies the service instance identifier (I-SID) on a DvR Leaf node.

<ports-tagged | ports-untagged> {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

rollback <0 | 30-3600>

Specifies the time in seconds between when the command is issued and when the command changes will be undone. The default is 120 seconds. To disable the rollback, enter 0.

vlan <1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

vrf WORD <1-16>

Specifies the VRF name to associate with the VLAN.

Default

None

Command Mode

Management Instance Configuration

convert-to-routing

Changes parameters for an existing routed Management VLAN, or converts a non-routed Management VLAN to routing mode.

Syntax

- **convert-to-routing [ip <A.B.C.D A.B.C.D | A.B.C.D/X>] [gateway {A.B.C.D}] [ipv6 <WORD<0-255>] [gateway-v6 WORD<0-255>] [rollback <0-3600>]**
- **convert-to-routing [vlan <1-4059>] [vrf WORD<1-16>] [ports-untagged {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}] [ports-tagged {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}] [ip <A.B.C.D A.B.C.D | A.B.C.D/X>] [gateway {A.B.C.D}] [ipv6 WORD<0-255>] [gateway-v6 WORD<0-255>] [rollback <0 | 30-3600>]**

Command Parameters

gateway <A.B.C.D>

Specifies the gateway IP address.

gateway-v6 WORD<0-255>

Specifies the gateway IPv6 address.

ip <A.B.C.D A.B.C.D | A.B.C.D/X>

Specifies the IP address and mask for the Management VLAN in one of the following formats:

- A.B.C.D A.B.C.D
- A.B.C.D/X

If you do not specify an IP address, the existing VLAN IP address is maintained.

ipv6 WORD<0-255>

Specifies the IPv6 address for the Management VLAN.

ports-tagged {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Specifies the tagged port list.

ports-untagged {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Specifies the untagged port list.

rollback <0 | 30-3600>

Specifies the time in seconds between when the command is issued and when the changes will be undone if you do not commit the change. The default is 120 seconds. To disable the rollback, enter 0.

vlan <1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

vrf WORD<1-16>

Specifies the VRF name to associate with the VLAN.

Default

None

Command Mode

Management Instance Configuration

Usage Guidelines

You cannot use this command in the following situations:

- on a DvR Leaf node
- on a VLAN with Secondary IP Interfaces

enable (for a Management Instance)

Enables a Segmented Management Instance.

Syntax

- **default enable**
- **enable**
- **no enable**

Default

The default is disabled.

Command Mode

Management Instance Configuration

Usage Guidelines

Segmented Management Instance VLANs in routing mode do not support this command. A Segmented Management Instance VLAN must be in non-routing mode.

force-topology-ip (for a Management Instance)

Specifies the default topology IP address for a Segmented Management Instance.

Syntax

- **default force-topology-ip**
- **force-topology-ip**
- **no force-topology-ip**

Default

None

Command Mode

Management Instance Configuration

Usage Guidelines

Segmented Management Instance VLANs in routing mode do not support this command. A Segmented Management Instance VLAN must be in non-routing mode.

ip address (for a Management Instance)

Adds an IPv4 address to a Segmented Management Instance.

Syntax

- **ip address {A.B.C.D/X}**
- **ip address {A.B.C.D} {A.B.C.D}**
- **no ip address**

Command Parameters

{A.B.C.D/X}

Specifies the address and mask.

{A.B.C.D} {A.B.C.D}

Specifies the address and mask.

Default

None

Command Mode

Management Instance Configuration

Usage Guidelines

Segmented Management Instance VLANs in routing mode do not support this command. A Segmented Management Instance VLAN must be in non-routing mode.

ip icmp drop-fragments (for a Management Instance)

Enable Fragmented ICMP packet filtering on a Segmented Management Instance.

Syntax

- **default ip icmp drop-fragments**
- **ip icmp drop-fragments**
- **no ip icmp drop-fragments**

Default

The default is disabled.

Command Mode

Management Instance Configuration

Usage Guidelines

Segmented Management Instance VLANs in routing mode do not support this command. A Segmented Management Instance VLAN must be in non-routing mode.

ip route (for a Management Instance)

Configures an IPv4 static or discard static route for a Management Instance.

Syntax

- **default ip route {A.B.C.D/X | <A.B.C.D> <A.B.C.D>} [next-hop {A.B.C.D}] [weight]**
- **ip route {A.B.C.D/X | <A.B.C.D> <A.B.C.D>} [next-hop {A.B.C.D}] [weight <1-65535>]**

- **no ip route {A.B.C.D/X | <A.B.C.D> <A.B.C.D>} [next-hop {A.B.C.D}] [weight]**

Command Parameters

{A.B.C.D/X}

Specifies the address and mask.

{A.B.C.D} {A.B.C.D}

Specifies the address and mask.

discard

Specifies the route as a discard static route.

next-hop {A.B.C.D}

Specifies the next hop address for the static route. Use an IP in the same subnet as the management VLAN IP address.

For a discard static route, configure the next hop address as ffff.ffff.ffff.ffff.ffff.ffff.ffff.ffff. This value indicates the traffic to this route is discarded.

weight <1-65535>

Specifies the static route cost. The default is 200.

Default

None

Command Mode

Management Instance Configuration

Usage Guidelines

For the Management Instance CLIP, you do not need to configure a default or static route. This interface type uses all routing information learned by protocols attached to the VRF. For more information about how to associate a VRF with the CLIP interface, see mgmt clip on page 579.

For the Management Instance OOB and VLAN, you must configure a default or static route to reach the next-hop gateway; no routing protocol information is used to access off-link networks.

Segmented Management Instance VLANs in routing mode do not support this command. A Segmented Management Instance VLAN must be in non-routing mode.

ipv6 address (for a Management Instance)

Adds an IPv6 address to a Segmented Management Instance.

Syntax

- **ipv6 address WORD<0-255>**
- **no ipv6 address**

Command Parameters

WORD<0-255>

Specifies the address and prefix length.

Default

None

Command Mode

Management Instance Configuration

Usage Guidelines

Segmented Management Instance VLANs in routing mode do not support this command. A Segmented Management Instance VLAN must be in non-routing mode.

ipv6 icmp drop-fragments (for a Management Instance)

Enable Internet Control Message Protocol (ICMP) redirect and unreachable messages. The system inspects each incoming IPv6 ICMP packet to determine if it should drop or forward it.

Syntax

- **ipv6 icmp drop-fragments**
- **default ipv6 icmp drop-fragments**
- **no ipv6 icmp drop-fragments**

Default

The default is disabled.

Command Mode

Management Instance Configuration

Usage Guidelines

Segmented Management Instance VLANs in routing mode do not support this command. A Segmented Management Instance VLAN must be in non-routing mode.

ipv6 route (for a Management Instance)

Configures an IPv6 static or a discard static route for a Management Instance.

Syntax

- **default ipv6 route WORD<0-255> [next-hop WORD<0-255>] [weight]**
- **ipv6 route WORD<0-255> [next-hop WORD<0-255>] [weight <1-65535>]**
- **no ipv6 route WORD<0-255> [next-hop WORD<0-255>] [weight]**

Command Parameters

discard

Specifies the route as a discard static route.

next-hop WORD<0-255>

Specifies the next hop address for the static route. Use an IP in the same subnet as the management VLAN IP address.

For a discard static route, configure the next hop address as ffff.ffff.ffff.ffff.ffff.ffff.ffff.ffff. This value indicates the traffic to this route is discarded.

weight <1-65535>

Specifies the static route cost. The default is 200.

WORD<0-255>

Specifies the address and prefix length.

Default

None

Command Mode

Management Instance Configuration

Usage Guidelines

For the Management Instance CLIP, you do not need to configure a default or static route. This interface type uses all routing information learned by protocols attached to the VRF. For more information about how to associate a VRF with the CLIP interface, see mgmt clip on page 579.

For the Management Instance OOB and VLAN, you must configure a default or static route to reach the next-hop gateway; no routing protocol information is used to access off-link networks.

Segmented Management Instance VLANs in routing mode do not support this command. A Segmented Management Instance VLAN must be in non-routing mode.

mac-offset (for a Management VLAN Instance)

Specifies the MAC-offset for a Management VLAN instance.

Syntax

- **mgmt vlan mac-offset <0-511>**

Command Parameters

mac-offset <0-511>

Specifies a number by which to offset the MAC address from the chassis MAC address. This ensures that each IP address has a different MAC address. If you omit this variable, a unique MAC offset is automatically generated.

Default

None

Command Mode

Global Configuration

rmon

Enables RMON for a Segmented Management Instance.

Syntax

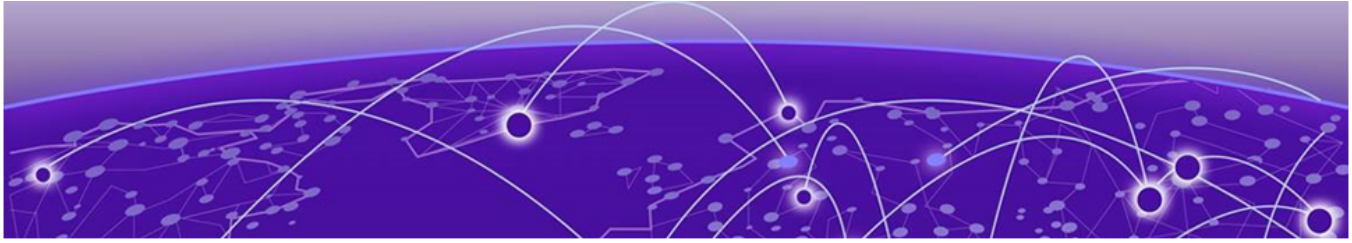
- **default rmon**
- **no rmon**
- **rmon**

Default

The default is disabled.

Command Mode

Management Instance Configuration



mgmtEthernet Interface Configuration

The following topics document commands available in mgmtEthernet Interface Configuration mode of the command line interface (CLI).

auto-negotiate (for the management port)

Configure auto-negotiation for the Ethernet management port.

Syntax

- **auto-negotiate enable**
- **default auto-negotiate enable**
- **no auto-negotiate enable**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

The default is enabled.

Command Mode

mgmtEthernet Interface Configuration

Usage Guidelines

This command only applies to hardware with a dedicated physical management interface.

duplex (for the management port)

Configure the duplex mode for the Ethernet management port.

Syntax

- **default duplex [port {slot/port[/sub-port][-slot/port[/sub-port]] [,...][slot/all][all]}]**
- **duplex [port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]<half|full>**

Command Parameters

<half|full>

Specifies half- or full-duplex mode. 1 and 10 Gb/s ports must use full-duplex mode.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

The default is half-duplex mode.

Command Mode

mgmtEthernet Interface Configuration

Usage Guidelines

This command only applies to hardware with a dedicated physical management interface.

shutdown (for the management port)

Disable the Ethernet management port.

Syntax

- **default shutdown**
- **no shutdown**
- **shutdown**

Default

The default is enabled.

Command Mode

mgmtEthernet Interface Configuration

Usage Guidelines

This command only applies to hardware with a dedicated physical management interface.

speed (for the management port)

Configure the speed for the Ethernet management (mgmt) port.

Syntax

- **default speed**
- **speed <10|100>**

Command Parameters

<10|100>

Configures the connection speed for ports to 10 or 100 Mb/s.

Default

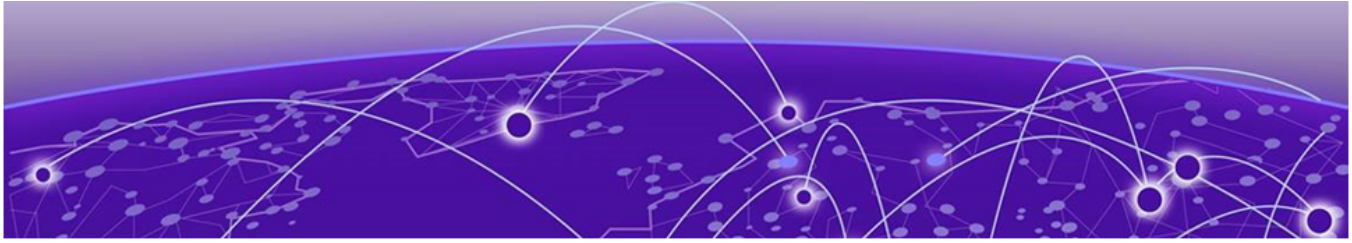
None

Command Mode

mgmtEthernet Interface Configuration

Usage Guidelines

This command only applies to hardware with a dedicated physical management interface.



MACsec MKA Keychain Configuration

The following topics document commands available in MKA Profile Configuration mode of the command line interface (CLI).

key

Create a MACsec MKA key consisting of a CKN/CA pair.

Syntax

- **key WORD<5-32> {cak WORD<10-64> | endtime <MMddyyyyhhmmss | unlimited>}**
- **no key WORD<5-32>**

Command Parameters

cak WORD<10-64>

Specifies the Connectivity Association key value.

This value is in hexadecimal format, preferably 32 characters (128-bit CAK) or 64 characters (256-bit CAK) and is padded with zeroes to match the selected cipher length.

endtime <MMddyyyyhhmmss> | unlimited

Specifies the expiry for the MKA keychain Coordinated Universal Time (UTC) regardless of the switch time-zone. The default is unlimited.

WORD<5-32>

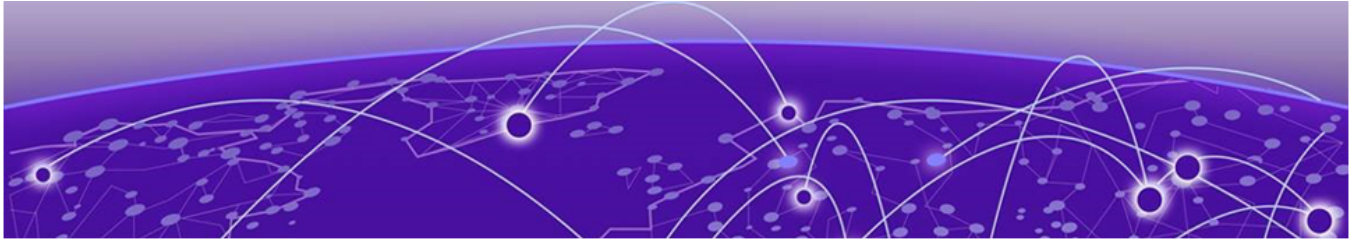
Specifies the keychain name.

Default

None

Command Mode

MKA-Keychain Configuration



MKA Profile Configuration

The following topics document commands available in MKA Profile Configuration mode of the command line interface (CLI).

confidentiality-offset

Configure the confidentiality offset to specify the number of unencrypted bytes that precede MACsec encryption. Valid values are 30 and 50. Configuring the offset to 30 enables an IPv4 header and TCP/UDP header to remain unencrypted, while configuring the offset to 50 enables an IPv6 header and TCP/UDP header to remain unencrypted.

Syntax

- **confidentiality-offset <30 | 50>**
- **default confidentiality-offset**
- **no confidentiality-offset**

Command Parameters

<30 | 50>

Specifies the bytes after the Ethernet header from which data encryption begins.

Default

The default is no confidentiality offset.

Command Mode

MKA Profile Configuration mode

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

include-sci

Configure SCI tagging for a MACsec-enabled switch.

Syntax

- **include-sci enable**
- **default include-sci enable**
- **no include-sci**

Default

The default is enabled.

Command Mode

MKA Profile Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

replay-protect

Configure a replay protect window that accepts out of sequence frames.

Syntax

- **default replay-protect enable**
- **no replay-protect enable**
- **replay-protect enable window-size <5-500>**

Command Parameters

enable

Enables replay protect for the specified MKA profile.

window-size

Specifies the maximum acceptable difference in packet numbers between out of order packets. If a packet number differs from the number of the previously received packet by more than the specified window size, the packet is dropped.

Default

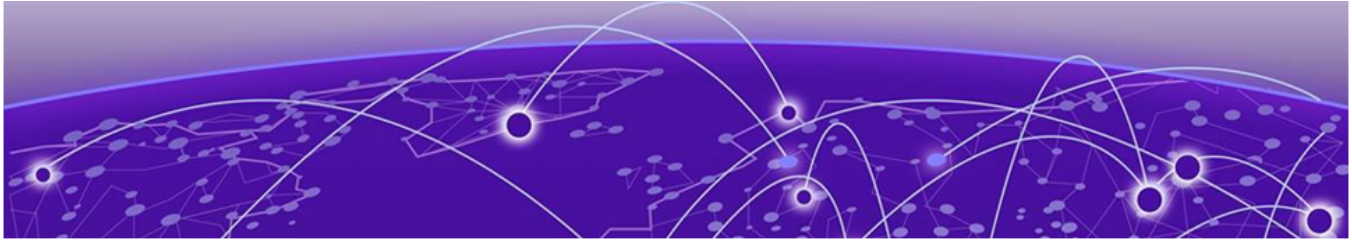
The default is disabled.

Command Mode

MKA Profile Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.



MLT Interface Configuration

The following topics document commands available in MLT Interface Configuration mode of the command line interface (CLI).

default svlan-porttype

Set svlan port type to default.

Syntax

- **default svlan-porttype**

Default

None

Command Mode

MLT Interface Configuration

end-point tracking (for an MLT/SMLT)

Create and enable Endpoint Tracking on and MLT and SMLT interfaces. Creating and enabling Endpoint Tracking on interfaces can be accomplished using a one-step or two-step process; you can create and enable at the same time, or create but leave disabled, and then enable at a later time.

Use the no operator with **endpoint-tracking** to delete, and the no operator with **endpoint-tracking enable** to disable.

Syntax

- **endpoint-tracking**
- **endpoint-tracking enable**
- **no endpoint-tracking**
- **no endpoint-tracking enable**

Command Parameters

enable

Creates and enables Endpoint Tracking, or enables Endpoint Tracking previously created on an MLT or SMLT.

Default

Disabled

Command Mode

MLT Interface Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

fa authentication-key (for an MLT)

Configure the Fabric Attach authentication key.

Syntax

- **default fa authentication-key**
- **fa authentication-key WORD<0-32>**

Command Parameters

WORD<0-32>

Configures the authentication key on the MLT.

Default

None

Command Mode

MLT Interface Configuration

fa enable (for an MLT)

Enable Fabric Attach on an MLT.

Syntax

- **fa enable**
- **no fa enable**

Default

None

Command Mode

MLT Interface Configuration

fa management (for an MLT)

Configure Fabric Attach management on an MLT.

Syntax

- **default fa management i-sid**
- **fa management i-sid <1-16777215> c-vid <1-4094>**
- **no fa management i-sid**

Command Parameters

c-vid <1-4094>

Specifies the customer VLAN ID.

i-sid <1-16777215>

Specifies the management I-SID.

Default

None

Command Mode

MLT Interface Configuration

fa message-authentication (for an MLT)

Configure Fabric Attach message authentication on an MLT.

Syntax

- **default no fa message-authentication**

- **fa message-authentication**
- **no fa message-authentication**

Default

None

Command Mode

MLT Interface Configuration

fa tcn enable (on an MLT)

Enables Fabric Attach (FA) Ring Topology Change Notification (TCN) processing on an FA-enabled MLT that connects to an ISW-Series Managed Industrial Ethernet Switches switch.

Syntax

- **fa tcn enable**
- **no fa tcn enable**

Default

The default is disabled.

Command Mode

MLT Interface Configuration

flex-uni (for an MLT)

Configure Switched UNI on an MLT.

Syntax

- **flex-uni enable**
- **default flex-uni enable**
- **no flex-uni enable**

Command Parameters

enable

Enables Switched UNI on an MLT.

Default

The default is disabled.

Command Mode

MLT Interface Configuration

ip dhcp-relay (for an MLT)

Configure Dynamic Host Configuration Protocol (DHCP) Relay on an interface. The command no ip dhcp-relay disables DHCP Relay but does not delete the DHCP entry.

Syntax

- **default ip dhcp-relay fwd-path {A.B.C.D} {A.B.C.D}**
- **default ip dhcp-relay broadcast**
- **default ip dhcp-relay circuitId**
- **default ip dhcp-relay fwd-path {A.B.C.D}**
- **default ip dhcp-relay fwd-path {A.B.C.D} {A.B.C.D} mode**
- **default ip dhcp-relay fwd-path {A.B.C.D} mode**
- **default ip dhcp-relay fwd-path {A.B.C.D} vrid <1-255>**
- **default ip dhcp-relay max-hop**
- **default ip dhcp-relay min-sec**
- **default ip dhcp-relay mode**
- **default ip dhcp-relay remoteId**
- **default ip dhcp-relay trusted**
- **ip dhcp-relay broadcast**
- **ip dhcp-relay circuitId**
- **ip dhcp-relay fwd-path {A.B.C.D}**
- **ip dhcp-relay fwd-path {A.B.C.D} {A.B.C.D}**
- **ip dhcp-relay fwd-path {A.B.C.D} {A.B.C.D} disable**
- **ip dhcp-relay fwd-path {A.B.C.D} {A.B.C.D} enable**
- **ip dhcp-relay fwd-path {A.B.C.D} {A.B.C.D} mode { bootp | bootp_dhcp | dhcp }**
- **ip dhcp-relay fwd-path {A.B.C.D} disable**
- **ip dhcp-relay fwd-path {A.B.C.D} enable**
- **ip dhcp-relay fwd-path {A.B.C.D} mode bootp**
- **ip dhcp-relay fwd-path {A.B.C.D} mode bootp_dhcp**
- **ip dhcp-relay fwd-path {A.B.C.D} mode dhcp**
- **ip dhcp-relay fwd-path {A.B.C.D} vrid <1-255>**

- **ip dhcp-relay max-hop <1-16>**
- **ip dhcp-relay min-sec <0-65535>**
- **ip dhcp-relay mode { bootp | dhcp | bootp_dhcp }**
- **ip dhcp-relay remoteId**
- **ip dhcp-relay trusted**
- **no ip dhcp-relay**
- **no ip dhcp-relay broadcast**
- **no ip dhcp-relay circuitId**
- **no ip dhcp-relay fwd-path {A.B.C.D}**
- **no ip dhcp-relay fwd-path {A.B.C.D} {A.B.C.D}**
- **no ip dhcp-relay fwd-path {A.B.C.D} {A.B.C.D} enable**
- **no ip dhcp-relay fwd-path {A.B.C.D} vrid <1-255>**
- **no ip dhcp-relay remoteId**
- **no ip dhcp-relay trusted**

Command Parameters

{A.B.C.D}

Creates a forwarding path to the DHCP server with a mode and a state. A.B.C.D is the IP address of the server. The default IP address of the relay is the address of the interface.



Tip

If the relay is a Virtual Router configured on this interface, you must set the vrid.

{A.B.C.D} {A.B.C.D}

The first IP address is the IP address of the dhcp-relay agent, while the second one is the IP address of the server.

<bootp|dhcp|bootp_dhcp>

Configures DHCP mode to forward BootP messages only, DHCP messages only, or both. The default is both.

broadcast

Enables the device to send the server reply as a broadcast to the end station. After you disable this variable, the device sends the server reply as a unicast to the end station.

circuitId

Enables the device to insert the Option 82 Circuit ID into the packets sent to the server (enables DHCP Option 82).

max-hop <1-16>

Configures the maximum number of hops before a BootP/DHCP packet is discarded (1-16). The default is 4.

min-sec <0-65535>

Configures the minimum seconds count for DHCP. If the secs field in the BootP/DHCP packet header is greater than this value, the device relays or forwards the packet; otherwise, the packet is dropped (0- 65535). The default is 0 seconds.

mode <bootp|dhcp|bootp_dhcp>

Configures DHCP mode to forward BootP messages only, DHCP messages only, or both. The default is both.

remoteId

Enables the device to insert the Option 82 Remote ID into the packets sent to the server (enables DHCP Option 82).

trusted

Configures the circuit as trusted in an Option 82 context.

Default

None

Command Mode

MLT Interface Configuration

ip dhcp-snooping (for MLT)

Sets the trust factor associated with an MLT for DHCP Snooping feature.

Syntax

- **default ip dhcp-snooping**
- **ip dhcp-snooping <trusted|untrusted>**
- **no ip dhcp-snooping**

Command Parameters

trusted

Sets the trust factor as trusted on the MLT for DHCP Snooping.

untrusted

Sets the trust factor as untrusted on the MLT for DHCP Snooping.

Default

The default is untrusted.

Command Mode

MLT Interface Configuration

i-sid (for an mlt)

Create Switched UNI (S-UNI) service instance identifiers (I-SID).

Syntax

- **i-sid <1-16777215> elan**

Command Parameters

<1-16777215>

Specifies the service instance identifiers (I-SID) number.

elan

Create an Elan based service.

Default

None

Command Mode

MLT Interface Configuration

isis (on an MLT)

Create an Intermediate-System-to-Intermediate-System (IS-IS) circuit and interface on the selected MultiLink Trunking (MLT) instance.

Syntax

- **default isis enable**
- **isis**
- **isis enable**
- **no isis**
- **no isis enable**

Command Parameters

enable

Enables the Intermediate-System-to-Intermediate-System (IS-IS) circuit and interface on the selected MLT.

Default

None

Command Mode

MLT Interface Configuration

isis hello-auth (on an MLT)

Configure the authentication type used for Intermediate-System-to-Intermediate-System (IS-IS) hello packets on the interface.

Syntax

- **default isis hello-auth**
- **isis hello-auth type { none | simple | hmac-md5 | hmac-sha-256 }**
- **isis hello-auth type { none | simple | hmac-md5 | hmac-sha-256 } key WORD<1-16>**
- **isis hello-auth type { none | simple | hmac-md5 | hmac-sha-256 } key WORD<1-16> key-id <1-255>**
- **no isis hello-auth**

Command Parameters

key WORD<1-16>

Specifies the authentication key (password) used by the receiving router to verify the packet.

key-id <1-255>

Specifies the optional key ID.

type { none | simple | hmac-md5 | hmac-sha-256 }

Specifies the authentication type used for IS-IS hello packets on the interface. The type can be one of the following: none, simple, hmac-md5, or hmac-sha-256.

- If simple is selected, you can also specify a key value. Simple password authentication uses a text password in the transmitted packet. The receiving router uses an authentication key (password) to verify the packet.
- If hmac-md5 is selected, you can also specify a key value and key-id. MD5 authentication creates an encoded checksum in the transmitted packet. The receiving router uses an authentication key (password) to verify the MD5 checksum of the packet.
- If hmac-sha-256 is selected, you can also specify a key value and key-id. With SHA-256 authentication, the switch adds an HMAC-SHA256 digest to each Hello packet. The switch that receives the Hello packet computes the digest of the packet and compares it with the received digest. If the digests match, the packet is accepted. If the digests do not match, the receiving switch discards the packet.

The default type is none. Use the no or default options to set the hello-auth type to none.

Default

The default is no authentication type (none).

Command Mode

MLT Interface Configuration

isis l1-dr-priority (on an MLT)

Configure the Level 1 Intermediate-System-to-Intermediate-System (IS-IS) designated router priority to the specified value.

Syntax

- **isis l1-dr-priority <0-127>**
- **no isis l1-dr-priority**

Command Parameters

<0-127>

Configures the Level 1 Intermediate-System-to-Intermediate-System (IS-IS) designated router priority to the specified value.

Default

The default Level 1 designated router priority value is 64.

Command Mode

MLT Interface Configuration

isis l1-hello-interval (on an MLT)

Configure the hello interval to change how often hello packets are sent out from an interface level.

Syntax

- **isis l1-hello-interval <1-600>**
- **no isis l1-hello-interval**

Command Parameters

<1-600>

Configures the Level 1 hello interval.

Default

The default Level 1 hello interval value is 9 seconds.

Command Mode

MLT Interface Configuration

isis l1-hello-multiplier (on an MLT)

Configure the hello multiplier to specify how many hellos the switch must miss before it considers the adjacency with a neighboring switch down.

Syntax

- **isis l1-hello-multiplier <1-600>**
- **no isis l1-hello-multiplier**

Command Parameters

<1-600>

Configures the Level 1 hello multiplier.

Default

The default Level 1 hello-multiplier value is 3 seconds.

Command Mode

MLT Interface Configuration

isis spbm (on an MLT)

Configure Shortest Path Bridging MAC (SPBM) on an Intermediate-System-to-Intermediate-System (IS-IS) interface on a MultiLink Trunking (MLT) instance.

Syntax

- **default isis spbm <1-100> interface-type**
- **default isis spbm <1-100> l1-metric**
- **isis spbm <1-100>**

- **isis spbm <1-100> interface-type { broadcast | pt-pt }**
- **isis spbm <1-100> l1-metric { <1-16777215> | auto }**
- **no isis spbm <1-100>**
- **no isis spbm <1-100> interface-type**
- **no isis spbm <1-100> l1-metric**

Command Parameters

<1-100>

Specifies the Shortest Path Bridging MAC (SPBM) instance ID.

interface-type { broadcast | pt-pt }

Configures the Shortest Path Bridging MAC (SPBM) instance interface type.

l1-metric { <1-16777215> | auto }

Configures the cost for the Shortest Path Bridging MAC (SPBM) instance. Configure a value or select **auto** . When you use the auto setting, the network route is determined by summing the lowest value metrics, which are inversely proportional to port speed. The default is **auto**.

Default

None

Command Mode

MLT Interface Configuration

lacp (on an MLT)

Configure a MultiLink Trunking (MLT) with Link Aggregation Control Protocol (LACP) to use the dynamic link aggregation function.

Syntax

- **default lacp**
- **default lacp key**
- **default lacp system-priority**
- **lacp enable**
- **lacp enable key <0-512> system-priority <0-65535>**
- **lacp key <0-512>**
- **lacp system-priority <0-65535>**
- **no lacp**
- **no lacp enable**

Command Parameters

enable

Enables Link Aggregation Control Protocol (LACP) on the MLT interface. The default is disabled.

key <0-512>

Sets the Link Aggregation Control Protocol (LACP) aggregator key for a specific MLT. <0-512> specifies the Link Aggregation Control Protocol (LACP) actor admin key. The default key value is 0

system-priority <0-65535>

Sets the Link Aggregation Control Protocol (LACP) system priority for a specific MLT. <0-65535> specifies the system priority. The default system-priority is 32768.

Default

None

Command Mode

MLT Interface Configuration

mef-uni enable (for an mlt)

Enable mef-union port (s).

Syntax

- **default mef-uni enable**
- **mef-uni enable**
- **no mef-uni enable**

Default

The default is enabled.

Command Mode

MLT Interface Configuration

virtual-ist (on an MLT)

Virtual interswitch trunk (VIST) improves upon the Layer 2 and Layer 3 resiliency by using a virtualized IST channel through the SPBM cloud.

Syntax

- **virtual-ist enable**

Command Parameters

enable

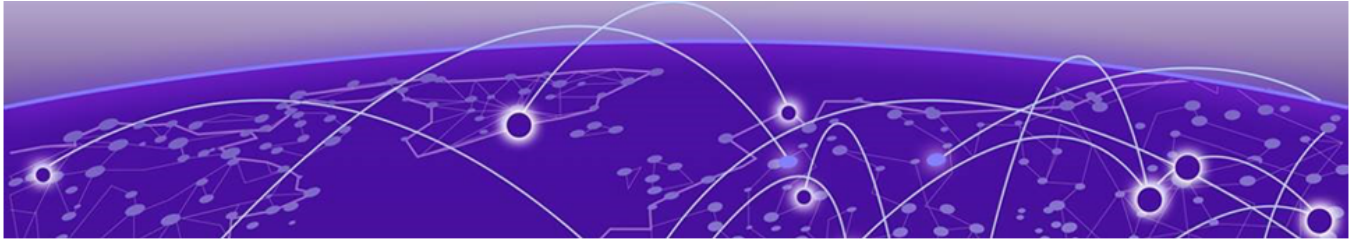
Enables vIST on the specified MLT ID.

Default

None

Command Mode

MLT Interface Configuration



OSPF Router Configuration

The following topics document commands available in OSPF Router Configuration mode of the command line interface (CLI).

accept adv-rtr (for OSPF)

Use a route policy to define how the switch Redistribute external routes from a specified source into an OSPF domain. The policy defines which route types the switch accepts and Redistribute.

Syntax

- **accept adv-rtr {A.B.C.D}**
- **accept adv-rtr {A.B.C.D} enable**
- **accept adv-rtr {A.B.C.D} metric-type { type1 | type2 | any }**
- **accept adv-rtr {A.B.C.D} route-map WORD<0-64>**
- **default accept adv-rtr {A.B.C.D}**
- **default accept adv-rtr {A.B.C.D} enable**
- **default accept adv-rtr {A.B.C.D} metric-type**
- **default accept adv-rtr {A.B.C.D} route-map**
- **no accept adv-rtr {A.B.C.D}**
- **no accept adv-rtr {A.B.C.D} enable**

Command Parameters

{A.B.C.D}

Specifies the IP address.

enable

Enables an OSPF accept entry for a specified advertising router.

metric-type <type1|type2|any>

Indicates the OSPF external type. This parameter describes which types of OSPF external routes match this entry. any means match all external routes. type1 means match external type 1 only. type2 means match external type 2 only.

route-map WORD<0-64>

Specifies the name of the route policy to use for filtering external routes advertised by the specified advertising router before accepting into the routing table.

Default

None

Command Mode

OSPF Router Configuration

area

Import information from other areas to learn their OSPF relationships and create normal, stubby, or not-so-stubby areas (NSSA). Place stubby or NSSAs at the edge of an OSPF routing domain.

Syntax

- **area {A.B.C.D}**
- **area {A.B.C.D} default-cost <0-16777215>**
- **area {A.B.C.D} import external**
- **area {A.B.C.D} import noexternal**
- **area {A.B.C.D} import nssa**
- **area {A.B.C.D} import-summaries enable**
- **area {A.B.C.D} stub**
- **default area {A.B.C.D}**
- **default area {A.B.C.D} default-cost**
- **default area {A.B.C.D} import**
- **default area {A.B.C.D} import-summaries enable**
- **default area {A.B.C.D} stub**
- **no area {A.B.C.D}**
- **no area {A.B.C.D} import-summaries enable**

Command Parameters

default-cost <0-16777215>

Stub area default metric for this stub area, which is the cost from 0 to 16 777 215. This is the metric value applied at the indicated type of service.

import <external|noexternal|nssa>

Specifies the type of area: external - Stub and NSSA (not so stubby area) are both false. noexternal-Configures the area as stub area. nssa - Configures the area as NSSA.

import-summaries enable

Configures the area support to import summary advertisements into a stub area. This parameter must be used only if the area is a stub area.

stub

Configures the import external option for this area as stub. A stub area has only one exit point (router interface) from the area.

Default

None

Command Mode

OSPF Router Configuration

area range

Use aggregate area ranges to reduce the number of link-state advertisements that are required within the area. You can also control advertisements.

Syntax

- **area range {A.B.C.D} {A.B.C.D/X} { summary-link | nssa-extlink } advertise-metric <0-65535>**
- **area range {A.B.C.D} {A.B.C.D/X} { summary-link | nssa-extlink } advertise-mode { summarize | suppress | no-summarize }**
- **default area range {A.B.C.D} {A.B.C.D/X} { summary-link | nssa-extlink }**
- **default area range {A.B.C.D} {A.B.C.D/X} { summary-link | nssa-extlink } advertise-metric**
- **default area range {A.B.C.D} {A.B.C.D/X} { summary-link | nssa-extlink } advertise-mode**
- **no area range {A.B.C.D} {A.B.C.D/X} { summary-link | nssa-extlink }**

Command Parameters

<A.B.C.D> <A.B.C.D/X>

<A.B.C.D> identifies an OSPF area and <A.B.C.DX> is the IP address and subnet mask of the range, respectively.

<summary-link|nssaextlink>

Specifies the LSA type. If you configure the range as type nssaextlink then you cannot configure the advertise-metric.

advertise-metric <0-65535>

Changes the advertised metric cost of the OSPF area range.

advertise-mode <summarize|suppress|nosummarize

Changes the advertisement mode of the range.

Default

None

Command Mode

OSPF Router Configuration

area virtual-link

Use manual virtual interfaces to provide a backup link for vital OSPF traffic with a minimum of resource use.

Syntax

- **area virtual-link {A.B.C.D} {A.B.C.D}**
- **area virtual-link {A.B.C.D} {A.B.C.D} authentication-key WORD<0-8>**
- **area virtual-link {A.B.C.D} {A.B.C.D} authentication-type message-digest**
- **area virtual-link {A.B.C.D} {A.B.C.D} authentication-type none**
- **area virtual-link {A.B.C.D} {A.B.C.D} authentication-type sha 1**
- **area virtual-link {A.B.C.D} {A.B.C.D} authentication-type sha 2**
- **area virtual-link {A.B.C.D} {A.B.C.D} authentication-type simple**
- **area virtual-link {A.B.C.D} {A.B.C.D} dead-interval <0-2147483647>**
- **area virtual-link {A.B.C.D} {A.B.C.D} hello-interval <1-65535>**
- **area virtual-link {A.B.C.D} {A.B.C.D} primary-digest-key <1-255>**
- **area virtual-link {A.B.C.D} {A.B.C.D} retransmit-interval <0-3600>**
- **area virtual-link {A.B.C.D} {A.B.C.D} transit-delay <0-3600>**
- **area virtual-link digest-key {A.B.C.D} {A.B.C.D} <1-255> key WORD<0-16>**
- **default area virtual-link {A.B.C.D} {A.B.C.D}**
- **default area virtual-link {A.B.C.D} {A.B.C.D} authentication-type**
- **default area virtual-link {A.B.C.D} {A.B.C.D} dead-interval**
- **default area virtual-link {A.B.C.D} {A.B.C.D} hello-interval**

- **default area virtual-link {A.B.C.D} {A.B.C.D} primary-digest-key**
- **default area virtual-link {A.B.C.D} {A.B.C.D} retransmit-interval**
- **default area virtual-link {A.B.C.D} {A.B.C.D} transit-delay**
- **default area virtual-link digest-key {A.B.C.D} {A.B.C.D} <1-255>**
- **no area virtual-link {A.B.C.D} {A.B.C.D}**
- **no area virtual-link digest-key {A.B.C.D} {A.B.C.D} <1-255>**

Command Parameters

<1-255>

Specifies the key ID.

<A.B.C.D> <A.B.C.D>

Creates a virtual interface area identifier. <A.B.C.D> <A.B.C.D> specify the area ID and the virtual interface ID, respectively.

authentication-key WORD<0-8>

Configures the authentication key of up to eight characters.

authentication-type <none|simple|message-digest|sha 1|sha 2>

Configures the authentication type for the OSPF area. authentication-type is: none, simple password, MD5 authentication, SHA 1, or SHA 2. If simple, all OSPF updates received by the interface must contain the authentication key specified by the area authentication-key command. If MD5, they must contain the MD5 key. The default is none.

dead-interval <0-2147483647>

Configures the dead interval, in seconds, for the virtual interface, the number of seconds that a router Hello packets are not seen before its neighbors declare the router down. This value must be at least four times the Hello interval value. The default is 60.

digest-key

Creates a digest-key.

hello-interval <1-65535>

Configures the Hello interval, in seconds, on the virtual interface for the length of time (in seconds) between the Hello packets that the router sends on the interface. The default is 10.

key WORD<0-16>

Specifies the digest key range.

primary-digest-key <1-255>

Changes the primary key used to encrypt outgoing packets. <1-255> is the ID for the message digest key.

retransmit-interval <0-3600>

Configures the retransmit interval for the virtual interface, the number of seconds between link-state advertisement retransmissions. The range is from 0 to 3600.

transit-delay <0-3600>

Configures the transit delay for the virtual interface, the estimated number of seconds required to transmit a link-state update over the interface. The range is from 0 to 3600.

Default

None

Command Mode

OSPF Router Configuration

as-boundary-router enable

Configure the router as an autonomous system boundary router (ASBR).

Syntax

- **as-boundary-router enable**
- **default as-boundary-router**
- **default as-boundary-router enable**
- **no as-boundary-router**
- **no as-boundary-router enable**

Default

The default is disabled.

Command Mode

OSPF Router Configuration

auto-vlink

Use automatic virtual links to provide an automatic, dynamic backup link for vital OSPF traffic. Automatic virtual links require more system resources than manually configured virtual links.

Syntax

- **auto-vlink**
- **default auto-vlink**
- **no auto-vlink**

Default

None

Command Mode

OSPF Router Configuration

bad-lsa-ignore enable

Configures the switch to accept bad LSAs, for example, with a hole in the mask. If you use the no operator with this command, the switch ignores bad LSAs.

Syntax

- **bad-lsa-ignore enable**
- **default bad-lsa-ignore**
- **default bad-lsa-ignore enable**
- **no bad-lsa-ignore**
- **no bad-lsa-ignore enable**

Default

The default is disabled.

Command Mode

OSPF Router Configuration

default-cost

Configures the default OSPF metrics.

Syntax

- **default default-cost**
- **default default-cost ethernet**
- **default default-cost fast-ethernet**
- **default default-cost forty-gig-ethernet**
- **default default-cost gig-ethernet**
- **default default-cost hundred-gig-ethernet**
- **default default-cost ten-gig-ethernet**
- **default default-cost twentyfive-gig-ethernet**
- **default default-cost vlan**

- **default-cost ethernet <1-65535>**
- **default-cost fast-ethernet <1-65535>**
- **default-cost forty-gig-ethernet <1-65535>**
- **default-cost gig-ethernet <1-65535>**
- **default-cost hundred-gig-ethernet <1-65535>**
- **default-cost ten-gig-ethernet <1-65535>**
- **default-cost twentyfive-gig-ethernet <1-65535>**
- **default-cost vlan <1-65535>**

Command Parameters

ethernet <1-65535>

Configures the OSPF default metrics for 10 Mb/s Ethernet. The default is 100.

fast-ethernet <1-65535>

Configures the OSPF default metrics for 100 Mb/s (Fast) Ethernet. The default is 10.

forty-gig-ethernet <1-65535>

Configures the OSPF default metrics for 40 Gigabit Ethernet. The default is 1.

gig-ethernet <1-65535>

Configures the OSPF default metrics for Gigabit Ethernet. The default is 1.

hundred-gig-ethernet <1-65535>

Configures the OSPF default metrics for 100 Gigabit Ethernet. The default is 1.

ten-gig-ethernet <1-65535>

Configures the OSPF default metrics for 10 Gigabit Ethernet. The default is 1.

twentyfive-gig-ethernet <1-65535>

Configures the OSPF default metrics for 25 Gigabit Ethernet. On a channelized 100 Gbps port, the default-cost for each 25 Gbps channel is 1

Default

None

Command Mode

OSPF Router Configuration

helper-mode-disable

Disable helper mode.

Syntax

- **default helper-mode-disable**
- **helper-mode-disable**
- **no helper-mode-disable**

Default

The default is enabled when OSPF is configured.

Command Mode

OSPF Router Configuration

host-route

Use host routes when the switch resides in a network that uses routing protocols other than OSPF.

Syntax

- **default host-route {A.B.C.D}**
- **default host-route {A.B.C.D} metric**
- **host-route {A.B.C.D}**
- **host-route {A.B.C.D} metric <0-65535>**
- **no host-route {A.B.C.D}**

Command Parameters

<A.B.C.D>

Specifies the IP address of the host router in a.b.c.d format.

metric <0-65535>

Configures the metric (cost) for the host route.

Default

None

Command Mode

OSPF Router Configuration

ip area virtual-link ipsec

Create the Internet Protocol Security (IPsec) policy under the OSPF virtual link.

Syntax

- **ip area virtual-link {A.B.C.D} {A.B.C.D} ipsec**
- **no ip area virtual-link {A.B.C.D} {A.B.C.D} ipsec**

Command Parameters

{A.B.C.D} {A.B.C.D}

The first IP address specifies the area IP address, and the second IP address specifies the virtual-link IP address.

Default

None

Command Mode

OSPF Router Configuration

ip area virtual-link ipsec action

Configure the action of the Internet Protocol Security (IPsec) policy under the OSPF virtual link.

Syntax

- **default ip area virtual-link {A.B.C.D} {A.B.C.D} ipsec action**
- **ip area virtual-link {A.B.C.D} {A.B.C.D} ipsec action drop**
- **ip area virtual-link {A.B.C.D} {A.B.C.D} ipsec action permit**
- **no ip area virtual-link {A.B.C.D} {A.B.C.D} ipsec action**

Command Parameters

{A.B.C.D} {A.B.C.D}

The first IP address specifies the area IP address, and the second IP address specifies the virtual-link IP address.

action <drop|permit>

Specifies the action of the IPsec policy under the OSPF virtual link to permit or drop traffic. The default is permit.

Default

The default is permit.

Command Mode

OSPF Router Configuration

ip area virtual-link ipsec direction

Configure the direction of the Internet Protocol Security (IPsec) policy under the OSPF virtual link.

Syntax

- **default ip area virtual-link {A.B.C.D} {A.B.C.D} ipsec direction**
- **ip area virtual-link {A.B.C.D} {A.B.C.D} ipsec direction both**
- **ip area virtual-link {A.B.C.D} {A.B.C.D} ipsec direction in**
- **ip area virtual-link {A.B.C.D} {A.B.C.D} ipsec direction out**
- **no ip area virtual-link {A.B.C.D} {A.B.C.D} ipsec direction**

Command Parameters

{A.B.C.D} {A.B.C.D}

The first IP address specifies the area IP address, and the second IP address specifies the virtual-link IP address.

<both|in|out>

Specifies the direction of the traffic of the IPsec policy under the OSPF virtual link.

Default

None

Command Mode

OSPF Router Configuration

ip area virtual-link ipsec enable

Enable the Internet Protocol Security (IPsec) policy created under the OSPF virtual link.

Syntax

- **default ip area virtual-link {A.B.C.D} {A.B.C.D} ipsec enable**
- **ip area virtual-link {A.B.C.D} {A.B.C.D} ipsec enable**
- **no ip area virtual-link {A.B.C.D} {A.B.C.D} ipsec enable**

Command Parameters

{A.B.C.D} {A.B.C.D}

The first IP address specifies the area IP address, and the second IP address specifies the virtual-link IP address.

Default

The default is disabled.

Command Mode

OSPF Router Configuration

ip area virtual-link ipsec security-association

Link the Internet Protocol Security (IPsec) security association to the OSPF virtual link.

Syntax

- **default ip area virtual-link {A.B.C.D} {A.B.C.D} ipsec security-association WORD<0-32>**
- **ip area virtual-link {A.B.C.D} {A.B.C.D} ipsec security-association WORD<0-32>**
- **no ip area virtual-link {A.B.C.D} {A.B.C.D} ipsec security-association WORD<0-32>**

Command Parameters

{A.B.C.D} {A.B.C.D}

The first IP address specifies the area IP address, and the second IP address specifies the virtual-link IP address.

WORD<0-32>

Specifies the name of the security association.

Default

None

Command Mode

OSPF Router Configuration

ipv6 area

Create and configure an OSPFv3 IPv6 area.

Syntax

- **default ipv6 area {A.B.C.D}**
- **default ipv6 area {A.B.C.D} default-cost**
- **default ipv6 area {A.B.C.D} import**
- **default ipv6 area {A.B.C.D} import-summaries enable**
- **ipv6 area {A.B.C.D}**
- **ipv6 area {A.B.C.D} default-cost <0-16777215>**
- **ipv6 area {A.B.C.D} import external**
- **ipv6 area {A.B.C.D} import noexternal**
- **ipv6 area {A.B.C.D} import nssa**
- **ipv6 area {A.B.C.D} import-summaries enable**
- **ipv6 area {A.B.C.D} translator-role <1-2>**
- **ipv6 area {A.B.C.D} type nssa**
- **ipv6 area {A.B.C.D} type stub**
- **no ipv6 area {A.B.C.D}**
- **no ipv6 area {A.B.C.D} import-summaries enable**

Command Parameters

{A.B.C.D}

Specifies the area address.

default-cost <0-16777215>

Specifies the stub metric for the area. The default-cost default is 10.

import <external|noexternal|nssa>

Configures the area support for importing advertisements. The default is external.

import-summaries enable

Configures the area support for importing summary advertisements into a stub area. Use this entry only for a stub area. The default is enabled.

translator-role {1|2}

Indicates a Not-So-Stubby-Area (NSSA) border router ability to perform translation of type-7 LSAs into type-5 LSAs. Configure this value to 2 to make it a candidate. You can configure this parameter only when you first create the area. The default translator-role is 1.

type {nssa|stub}

Configures the type of area. A Not-So-Stubby-Area (NSSA) prevents flooding of normal route advertisements into the area by replacing them with a default route. A stub area uses only one exit point (router interface) out of the area. You can configure this parameter only when you first create the area. By default, the area is neither a stub area or NSSA (Not-So-Stubby Area).

Default

None

Command Mode

OSPF Router Configuration

ipv6 area range

Create and configure an area address range on the OSPF router to reduce the number of ABR advertisements into other OSPF areas.

Syntax

- **default ipv6 area range {A.B.C.D} WORD<0-255> inter-area-prefix-link [advertise-metric]**
- **default ipv6 area range {A.B.C.D} WORD<0-255> nssa-extlink [advertise-metric]**
- **ipv6 area range {A.B.C.D} WORD<0-255> advertise-mode advertise**
- **ipv6 area range {A.B.C.D} WORD<0-255> advertise-mode not-advertise**
- **ipv6 area range {A.B.C.D} WORD<0-255> inter-area-prefix-link advertise-metric <0-65535>**
- **ipv6 area range {A.B.C.D} WORD<0-255> inter-area-prefix-link advertise-mode advertise**
- **ipv6 area range {A.B.C.D} WORD<0-255> inter-area-prefix-link advertise-mode not-advertise**
- **ipv6 area range {A.B.C.D} WORD<0-255> nssa-extlink advertise-metric <0-65535>**
- **ipv6 area range {A.B.C.D} WORD<0-255> nssa-extlink advertise-mode advertise**
- **ipv6 area range {A.B.C.D} WORD<0-255> nssa-extlink advertise-mode not-advertise**
- **no ipv6 area range {A.B.C.D} WORD<0-255> inter-area-prefix-link**
- **no ipv6 area range {A.B.C.D} WORD<0-255> nssa-extlink**

Command Parameters

{A.B.C.D}

Specifies the area address.

advertise-metric <0-65535>

Specifies the advertise metric value and LSA type. The default advertise-metric is 0.

advertise-mode <advertise|not-advertise>

Configures if the area advertises into other OSPF areas. The default avertise-mode is advertise.

inter-area-prefix-link

Configures the area to use this LSA type.

nssa-extlink

Configures the area to use this LSA type.

WORD<0-255>

Specifies the IPv6 address and prefix.

Default

None

Command Mode

OSPF Router Configuration

ipv6 area virtual-link

Configure an OSPF virtual interface to the ABR if a remote OSPF ABR uses no connection to the backbone area but needs to be part of the same routing domain in which the switch resides.

Syntax

- **default ipv6 area virtual-link {A.B.C.D} {A.B.C.D}**
- **default ipv6 area virtual-link {A.B.C.D} {A.B.C.D} dead-interval**
- **default ipv6 area virtual-link {A.B.C.D} {A.B.C.D} hello-interval**
- **default ipv6 area virtual-link {A.B.C.D} {A.B.C.D} retransmit-interval**
- **default ipv6 area virtual-link {A.B.C.D} {A.B.C.D} transit-delay**
- **ipv6 area virtual-link {A.B.C.D} {A.B.C.D}**
- **ipv6 area virtual-link {A.B.C.D} {A.B.C.D} dead-interval <1-65535>**
- **ipv6 area virtual-link {A.B.C.D} {A.B.C.D} hello-interval <1-65535>**
- **ipv6 area virtual-link {A.B.C.D} {A.B.C.D} retransmit-interval <1-1800>**
- **ipv6 area virtual-link {A.B.C.D} {A.B.C.D} transit-delay <1-1800>**
- **no ipv6 area virtual-link {A.B.C.D} {A.B.C.D}**

Command Parameters

{A.B.C.D} {A.B.C.D}

Specifies the area address and the virtual link address.

dead-interval <1-65535>

Specifies the dead interval, as the number of seconds to wait before determining the OSPF router is down. The default dead-interval is 60.

hello-interval <1-65535>

Specifies the hello interval, in seconds, for hello packets sent between switches for a virtual interface in an OSPF area. The default hello interval is 10.

retransmit-interval <1-1800>

Specifies the retransmit interval, in seconds, for link-state advertisements. The default retransmit-interval is 5.

transit-delay <1-1800>

Specifies the transit-delay interval, in seconds, required to transmit a link-state update packet over the virtual interface. The default transit-delay is 1.

Default

The default is disabled.

Command Mode

OSPF Router Configuration

ipv6 area virtual-link ipsec

Create the Internet Protocol Security (IPsec) policy under the OSPF virtual link.

Syntax

- **ipv6 area virtual-link {A.B.C.D} {A.B.C.D} ipsec**
- **no ipv6 area virtual-link {A.B.C.D} {A.B.C.D} ipsec**

Command Parameters

{A.B.C.D} {A.B.C.D}

The first IP address specifies the area IP address, and the second IP address specifies the virtual-link IP address.

Default

None

Command Mode

OSPF Router Configuration

ipv6 area virtual-link ipsec action

Configure the action of the Internet Protocol Security (IPsec) policy under the OSPF virtual link.

Syntax

- **default ipv6 area virtual-link {A.B.C.D} {A.B.C.D} ipsec action**
- **ipv6 area virtual-link {A.B.C.D} {A.B.C.D} ipsec action drop**
- **ipv6 area virtual-link {A.B.C.D} {A.B.C.D} ipsec action permit**
- **no ipv6 area virtual-link {A.B.C.D} {A.B.C.D} ipsec action**

Command Parameters

{A.B.C.D} {A.B.C.D}

The first IP address specifies the area IP address, and the second IP address specifies the virtual-link IP address.

action <drop|permit>

Specifies the action of the IPsec policy under the OSPF virtual link to permit or drop traffic. The default is permit.

Default

The default is permit.

Command Mode

OSPF Router Configuration

ipv6 area virtual-link ipsec direction

Configure the direction of the Internet Protocol Security (IPsec) policy under the OSPF virtual link.

Syntax

- **default ipv6 area virtual-link {A.B.C.D} {A.B.C.D} ipsec direction**
- **ipv6 area virtual-link {A.B.C.D} {A.B.C.D} ipsec direction both**
- **ipv6 area virtual-link {A.B.C.D} {A.B.C.D} ipsec direction in**
- **ipv6 area virtual-link {A.B.C.D} {A.B.C.D} ipsec direction out**
- **no ipv6 area virtual-link {A.B.C.D} {A.B.C.D} ipsec direction**

Command Parameters

{A.B.C.D} {A.B.C.D}

The first IP address specifies the area IP address, and the second IP address specifies the virtual-link IP address.

<both|in|out>

Specifies the direction of the traffic of the IPsec policy under the OSPF virtual link.

Default

None

Command Mode

OSPF Router Configuration

ipv6 area virtual-link ipsec enable

Enable the Internet Protocol Security (IPsec) policy created under the OSPF virtual link.

Syntax

- **default ipv6 area virtual-link {A.B.C.D} {A.B.C.D} ipsec enable**
- **ipv6 area virtual-link {A.B.C.D} {A.B.C.D} ipsec enable**
- **no ipv6 area virtual-link {A.B.C.D} {A.B.C.D} ipsec enable**

Command Parameters

{A.B.C.D} {A.B.C.D}

The first IP address specifies the area IP address, and the second IP address specifies the virtual-link IP address.

Default

The default is disabled.

Command Mode

OSPF Router Configuration

ipv6 area virtual-link ipsec security-association

Link the Internet Protocol Security (IPsec) security association to the OSPF virtual link.

Syntax

- **default ipv6 area virtual-link {A.B.C.D} {A.B.C.D} ipsec security-association WORD<0-32>**

- **ipv6 area virtual-link {A.B.C.D} {A.B.C.D} ipsec security-association WORD<0-32>**
- **no ipv6 area virtual-link {A.B.C.D} {A.B.C.D} ipsec security-association WORD<0-32>**

Command Parameters

{A.B.C.D} {A.B.C.D}

The first IP address specifies the area IP address, and the second IP address specifies the virtual-link IP address.

WORD<0-32>

Specifies the name of the security association.

Default

None

Command Mode

OSPF Router Configuration

ipv6 as-boundary-router

Enable or disable the boundary-router on the router interface.

Syntax

- **default ipv6 as-boundary-router [enable]**
- **ipv6 as-boundary-router**
- **ipv6 as-boundary-router enable**
- **no ipv6 as-boundary-router [enable]**

Command Parameters

enable

Enables the boundary-router.

Default

The default is disabled.

Command Mode

OSPF Router Configuration

ipv6 redistribute (for OSPF)

Enable redistribution to redistribute IPv6 routes into an OSPFv3 routing domain.

Syntax

- **default ipv6 redistribute {bgp | direct | ospf | rip |static} [enable]**
- **ipv6 redistribute direct {enable | metric <0-65535> | metric-type [type1][type2] | route-map WORD<1-64>}**
- **ipv6 redistribute isis {enable | metric <0-65535> | metric-type [type1][type2] | route-map WORD<1-64>}**
- **ipv6 redistribute static {enable | metric <0-65535> | metric-type [type1][type2] | route-map WORD<1-64>}**
- **no ipv6 redistribute {bgp | direct | ospf | rip |static} [enable]**

Command Parameters

{bgp | direct | ospf | rip |static}

Specifies the type of IPv6 route to redistribute to the OSPFv3 routing domain.

{enable | metric <0-65535> | metric-type [type1][type2] | route-map WORD<1-64>}

Enables redistribution.

Default

The default is disabled.

Command Mode

OSPF Router Configuration

ipv6 redistribute bgp enable (For OSPF)

Enable IPv6 BGP redistribute.

Syntax

- **ipv6 redistribute bgp enable**
- **no ipv6 redistribute bgp enable**

Default

None

Command Mode

OSPF Router Configuration

ipv6 router-id

Configure the OSPF router ID.

Syntax

- **default ipv6 router-id**
- **ipv6 router-id {A.B.C.D}**

Command Parameters

{A.B.C.D}

Specifies the address for the router ID.

Default

None

Command Mode

OSPF Router Configuration

ipv6 tunnel (for OSPF)

Configure OSPF parameters for an IPv6 tunnel.

Syntax

- **default ipv6 tunnel <1-2000>**
- **default ipv6 tunnel <1-2000> dead-interval**
- **default ipv6 tunnel <1-2000> hello-interval**
- **default ipv6 tunnel <1-2000> metric**
- **default ipv6 tunnel <1-2000> poll-interval**
- **default ipv6 tunnel <1-2000> priority**
- **default ipv6 tunnel <1-2000> retransmit-interval**
- **default ipv6 tunnel <1-2000> transmit-delay**
- **ipv6 tunnel <1-2000> area {A.B.C.D}**
- **ipv6 tunnel <1-2000> dead-interval <1-65535>**
- **ipv6 tunnel <1-2000> enable**
- **ipv6 tunnel <1-2000> hello-interval <1-65535>**

- **ipv6 tunnel <1-2000> metric <0-65535>**
- **ipv6 tunnel <1-2000> poll-interval <0-65535>**
- **ipv6 tunnel <1-2000> priority <0-255>**
- **ipv6 tunnel <1-2000> retransmit-interval <1-1800>**
- **ipv6 tunnel <1-2000> transmit-delay <1-1800>**
- **no ipv6 tunnel <1-2000>**
- **no ipv6 tunnel <1-2000> enable**

Command Parameters

{A.B.C.D}

Specifies the area address.

<1-2000>

Specifies the tunnel ID.

dead-interval <1-65535>

Specifies the dead interval, as the number of seconds to wait before determining the OSPF router is down. The default dead-interval is 40.

hello-interval <1-65535>

Specifies the hello interval, in seconds, for hello packets sent between switches for an interface in an OSPF area. The default hello-interval is 10.

metric <0-65535>

Configures the OSPF metric for the tunnel. The switch advertises the metric in router link advertisements. The default metric is 100.

poll-interval <0-65535>

Configures the polling interval, in seconds, for the OSPF tunnel. The default pollinterval is 120.

priority <0-255>

Configures the OSPF priority for the interface during the election process for the designated router. The interface with the highest priority number is the designated router. The interface with the second-highest priority becomes the backup designated router. If the priority is 0, the interface cannot become either the designated router or a backup. The default priority is 1.

retransmit-interval <1-1800>

Specifies the retransmit interval, in seconds, for link-state advertisements. The default retransmit-interval is 5.

transmit-delay <1-1800>

Specifies the transmit-delay interval, in seconds, required to transmit a link-state update packet over the virtual interface. The default transmit-delay is 1.

Default

None

Command Mode

OSPF Router Configuration

neighbor (for OSPF)

Configure NBMA neighbors so that the interface can participate in Designated Router election. All OSPF neighbors that you manually configure are NBMA neighbors.

Syntax

- **default neighbor {A.B.C.D}**
- **neighbor {A.B.C.D} priority <0-255>**
- **network {A.B.C.D}**
- **no neighbor {A.B.C.D}**

Command Parameters

<A.B.C.D>

Identifies an OSPF area in IP address format A.B.C.D.

priority <0-255>

Changes the priority level of the neighbor.

Default

None

Command Mode

OSPF Router Configuration

network (for OSPF)

Enable OSPF on a network.

Syntax

- **default network {A.B.C.D}**
- **network {A.B.C.D}**
- **network {A.B.C.D} area {A.B.C.D}**
- **no network {A.B.C.D}**

Command Parameters

{A.B.C.D}

Specifies the IP address of the network.

area {A.B.C.D}

Specifies the OSPF area.

Default

None

Command Mode

OSPF Router Configuration

redistribute bgp (for OSPF)

Redistribute learned routes into OSPF.

Syntax

- **default redistribute bgp [enable] [metric] [metric-type] [route-map] [route-policy] [subnets] [vrf-src WORD<1-16>]**
- **no redistribute bgp [-filter-tag] [enable] [route-map] [route-policy] [vrf-src WORD<1-16>]**
- **redistribute bgp [enable] [metric <0-65535>] [metric-type {type1 | type2}] [route-map WORD<0-64>] [route-policy WORD<0-64>] [subnets {allow | suppress}] [vrf-src WORD<1-16>]**

Command Parameters

enable

Enables route redistribution of learned IP routes into OSPF.

metric <0-65535>

Configures the metric (cost) to apply to redistributed routes. The default is 1.

metric-type { type1 | type2 }

Configures the type of route to import into the OSPF protocol.

route-map WORD<0-64>

Configures the route policy to apply to redistributed routes.

route-policy WORD<0-64>

Configures the route policy to apply to redistributed routes.

subnets { allow | suppress }

Indicates whether the subnets are advertised individually or aggregated to their classful subnet. Choose allow to advertise the subnets individually with the learned or configured mask of the subnet. The default is allow.

vrf-src WORD<1-16>

Specifies the source VRF instance. This parameter is not required for redistribution within the same VRF.

Default

By default, route redistribution is disabled.

Command Mode

OSPF Router Configuration

redistribute direct (for OSPF)

Redistribute learned routes into OSPF.

Syntax

- **default redistribute direct [enable] [metric] [metric-type] [route-map] [route-policy] [subnets] [vrf-src WORD<1-16>]**
- **no redistribute direct [enable] [route-map] [route-policy] [vrf-src WORD<1-16>]**
- **redistribute direct [enable] [metric <0-65535>] [metric-type {type1 | type2}] [route-map WORD<0-64>] [route-policy WORD<0-64>] [subnets {allow | suppress}] [vrf-src WORD<1-16>]**

Command Parameters

enable

Enables route redistribution of learned IP routes into OSPF.

metric <0-65535>

Configures the metric (cost) to apply to redistributed routes. The default is 1.

metric-type { type1 | type2 }

Configures the type of route to import into the OSPF protocol.

route-map WORD<0-64>

Configures the route policy to apply to redistributed routes.

route-policy WORD<0-64>

Configures the route policy to apply to redistributed routes.

subnets { allow | suppress }

Indicates whether the subnets are advertised individually or aggregated to their classful subnet. Choose allow to advertise the subnets individually with the learned or configured mask of the subnet. The default is allow.

vrf-src WORD<1-16>

Specifies the source VRF instance. This parameter is not required for redistribution within the same VRF.

Default

By default, route redistribution is disabled.

Command Mode

OSPF Router Configuration

redistribute dvr (for OSPF)

Redistribute learned routes into OSPF.

Syntax

- **default redistribute dvr [enable] [metric] [metric-type] [route-map] [route-policy] [subnets] [vrf-src WORD<1-16>]**
- **no redistribute dvr [enable] [route-map] [route-policy] [vrf-src WORD<1-16>]**
- **redistribute dvr [enable] [metric <0-65535>] [metric-type {type1 | type2}] [route-map WORD<0-64>] [route-policy WORD<0-64>] [subnets {allow | suppress}] [vrf-src WORD<1-16>]**

Command Parameters

enable

Enables route redistribution of learned IP routes into OSPF.

metric <0-65535>

Configures the metric (cost) to apply to redistributed routes. The default is 1.

metric-type { type1 | type2 }

Configures the type of route to import into the OSPF protocol.

route-map WORD<0-64>

Configures the route policy to apply to redistributed routes.

route-policy WORD<0-64>

Configures the route policy to apply to redistributed routes.

subnets { allow | suppress }

Indicates whether the subnets are advertised individually or aggregated to their classful subnet. Choose allow to advertise the subnets individually with the learned or configured mask of the subnet. The default is allow.

vrf-src WORD<1-16>

Specifies the source VRF instance. This parameter is not required for redistribution within the same VRF.

Default

By default, route redistribution is disabled.

Command Mode

OSPF Router Configuration

redistribute isis (for OSPF)

Redistribute learned routes into OSPF.

Syntax

- **default redistribute isis [enable] [metric] [metric-type] [route-map] [subnets] [vrf-src WORD<1-16>]**
- **no redistribute isis [auto-filter-tag] [enable] [route-map] [vrf-src WORD<1-16>]**
- **redistribute isis [auto-filter-tag] [enable] [metric <0-65535>] [metric-type {type1 | type2}] [route-map WORD<0-64>] [subnets {allow | suppress}] [vrf-src WORD<1-16>]**

Command Parameters

auto-filter-tag

Enables route filtering to ensure tagged IS-IS routes are not redistributed into OSPF. The default is disabled.

enable

Enables route redistribution of Intermediate-System-to-Intermediate-System (IS-IS) learned IP routes into OSPF.

metric <0-65535>

Configures the metric (cost) to apply to redistributed routes. The default is 1.

metric-type { type1 | type2 }

Configures the type of route to import into the OSPF protocol.

route-map WORD<0-64>

Configures the route policy to apply to redistributed routes.

subnets { allow | suppress }

Indicates whether the subnets are advertised individually or aggregated to their classful subnet. Choose allow to advertise the subnets individually with the learned or configured mask of the subnet. The default is allow.

vrf-src WORD<1-16>

Specifies the source VRF instance. This parameter is not required for redistribution within the same VRF.

Default

By default, route redistribution is disabled.

Command Mode

OSPF Router Configuration

redistribute rip (for OSPF)

Redistribute learned routes into OSPF.

Syntax

- **default redistribute rip [enable] [metric] [metric-type] [route-map] [route-policy] [subnets] [vrf-src WORD<1-16>]**
- **no redistribute rip [enable] [route-map] [route-policy][vrf-src WORD<1-16>]**
- **redistribute rip [enable] [metric <0-65535>] [metric-type {type1 | type2}] [route-map WORD<0-64>] [route-policy WORD<0-64>][subnets {allow | suppress}] [vrf-src WORD<1-16>]**

Command Parameters

enable

Enables route redistribution of learned IP routes into OSPF.

metric <0-65535>

Configures the metric (cost) to apply to redistributed routes. The default is 1.

metric-type { type1 | type2 }

Configures the type of route to import into the OSPF protocol.

route-map WORD<0-64>

Configures the route policy to apply to redistributed routes.

route-policy WORD<0-64>

Configures the route policy to apply to redistributed routes.

subnets { allow | suppress }

Indicates whether the subnets are advertised individually or aggregated to their classful subnet. Choose allow to advertise the subnets individually with the learned or configured mask of the subnet. The default is allow.

vrf-src WORD<1-16>

Specifies the source VRF instance. This parameter is not required for redistribution within the same VRF.

Default

By default, route redistribution is disabled.

Command Mode

OSPF Router Configuration

redistribute static (for OSPF)

Redistribute learned routes into OSPF.

Syntax

- **default redistribute static [enable] [metric] [metric-type] [route-map] [route-policy] [subnets] [vrf-src WORD<1-16>]**
- **no redistribute static [enable] [route-map] [route-policy] [vrf-src WORD<1-16>]**
- **redistribute static [enable] [metric <0-65535>] [metric-type {type1 | type2}] [route-map WORD<0-64>] [route-policy WORD<0-64>] [subnets {allow | suppress}] [vrf-src WORD<1-16>]**

Command Parameters

enable

Enables route redistribution of learned IP routes into OSPF.

metric <0-65535>

Configures the metric (cost) to apply to redistributed routes. The default is 1.

metric-type { type1 | type2 }

Configures the type of route to import into the OSPF protocol.

route-map WORD<0-64>

Configures the route policy to apply to redistributed routes.

route-policy WORD<0-64>

Configures the route policy to apply to redistributed routes.

subnets { allow | suppress }

Indicates whether the subnets are advertised individually or aggregated to their classful subnet. Choose allow to advertise the subnets individually with the learned or configured mask of the subnet. The default is allow.

vrf-src WORD<1-16>

Specifies the source VRF instance. This parameter is not required for redistribution within the same VRF.

Default

By default, route redistribution is disabled.

Command Mode

OSPF Router Configuration

rfc1583-compatibility enable

Controls the preference rules used when the router chooses among multiple autonomous system external (ASE) LSAs which advertise the same destination. If enabled, the preference rule is the same as that specified by RFC1583. If disabled, the preference rule is as described in RFC2328, which can prevent routing loops when ASE LSAs for the same destination originate from different areas.

Syntax

- **default rfc1583-compatibility**
- **default rfc1583-compatibility enable**
- **no rfc1583-compatibility**
- **no rfc1583-compatibility enable**
- **rfc1583-compatibility enable**

Default

The default is disabled.

Command Mode

OSPF Router Configuration

router-id (for OSPF)

Configure OSPF parameters on the switch to control how OSPF behaves on the system. The switch uses global parameters to communicate with other OSPF routers. Globally configure OSPF before you configure OSPF for an interface, port, or VLAN.

Syntax

- **default router-id**
- **no router-id**
- **router-id {A.B.C.D}**

Command Parameters

router-id <A.B.C.D>

Configures the OSPF router ID IP address, where A.B.C.D is the IP address.

Default

None

Command Mode

OSPF Router Configuration

show ip ospf

Display OSPF configuration information to ensure accuracy.

Syntax

- **show ip ospf**
- **show ip ospf vrf WORD <1-16>**
- **show ip ospf vrfids WORD <0-512>**

Command Parameters

vrf WORD <1-16>

Specifies a VRF by name.

vrfids WORD <0-512>

Specifies a range of VRF IDs.

Default

None

Command Mode

OSPF Router Configuration

timers basic holddown (for OSPF)

Configures the OSPF hold-down timer value, the length of time (in seconds) that OSPF continues to advertise a network after determining that it is unreachable.

Syntax

- **default timers basic**
- **default timers basic holddown**
- **timers basic holddown <3-60>**

Command Parameters

<3-60>

Configures the holddown timer value.

Default

The default is 120 seconds.

Command Mode

OSPF Router Configuration

trap

Enable OSPF traps.

Syntax

- **default trap**
- **default trap enable**
- **no trap**
- **no trap enable**
- **trap enable**

Command Parameters

enable

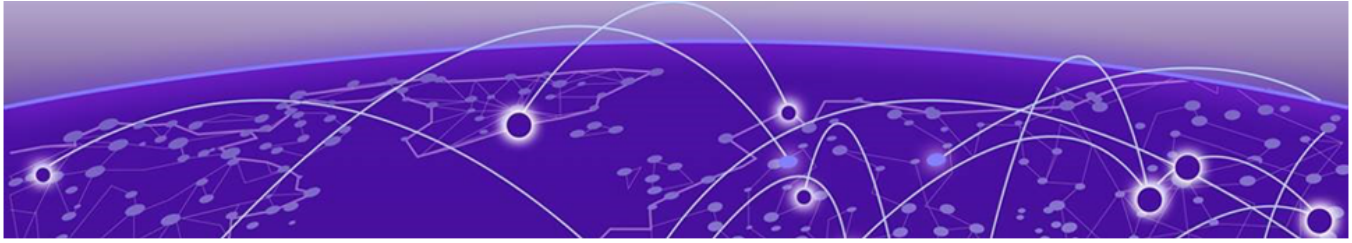
Enables OSPF traps.

Default

The default value is disable.

Command Mode

OSPF Router Configuration



OVSDB Configuration

The following topics document commands available in OVSDB Configuration mode of the command line interface (CLI).

controller

Configures the Network Virtualization Controller for OVSDB.

Syntax

- **controller <1-100> ip address <A.B.C.D> protocol ssl**
- **controller <1-100> ip address <A.B.C.D> protocol ssl port <1-65535>**
- **controller <1-100> ip address <A.B.C.D> protocol tcp**
- **controller <1-100> ip address <A.B.C.D> protocol tcp port <1-65535>**
- **no controller <1-100>**

Command Parameters

<1-100>

Specifies the OVSDB controller ID.

ip address <A.B.C.D>

Specifies an IPv4 address for the OVSDB controller.

port <1-65535>

Specifies a port number for the OVSDB controller.

protocol ssl

Specifies SSL communications protocol for the OVSDB controller.

protocol tcp

Specifies TCP communications protocol for the OVSDB controller.

Default

None

Command Mode

OVSDB Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

enable

Enables OVSDB protocol support for VXLAN Gateway.

Syntax

- **enable**

Default

The default is disabled.

Command Mode

OVSDB Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

install-cert-file

Specifies the certificate file path and file name for OVSDB.

Syntax

- **install-cert-file WORD<1-128>**
- **no install-cert-file**

Command Parameters

WORD <1-128>

Specifies the path and file name of the OVSDB certificate.

Default

None

Command Mode

OVSDB Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

managed-interface i-sids

Configure an I-SID as the management interface for OVSDB.

Syntax

- **managed-interface i-sids WORD <1-1024>**

Command Parameters

WORD <1-1024>

Specifies the I-SIDs to create an OVSDB managed interface.

Default

None

Command Mode

OVSDB Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

private-key

Specifies the path and filename of the private key for OVSDB.

Syntax

- **no private-key**
- **private key WORD <1-128>**

Command Parameters

WORD <1-128>

Specifies the path and file name of the OVSDB private key.

Default

None

Command Mode

OVSDB Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

replication

Configures OVSDB replication.

Syntax

- **default replication**
- **no replication**
- **replication peer-ip <A.B.C.D> local-ip <A.B.C.D>**

Command Parameters

local-ip <A.B.C.D>

Specifies an IPv4 address for the primary local OVSDB controller.

peer-ip <A.B.C.D>

Specifies an IPv4 address for the secondary peer OVSDB controller.

Default

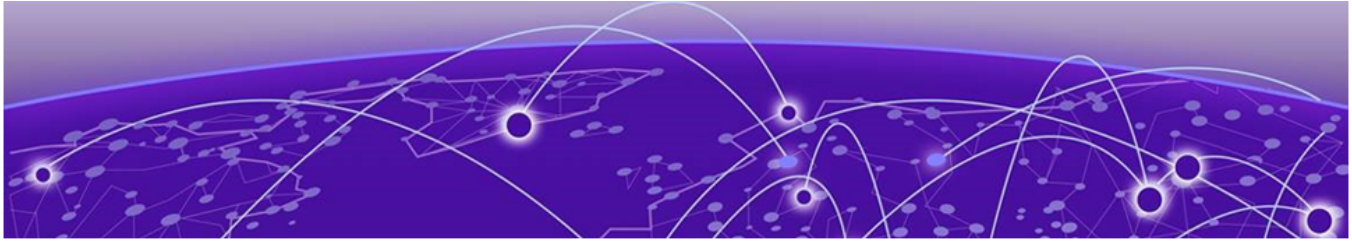
None

Command Mode

OVSDB Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.



Privileged EXEC

The following topics document commands available in Privileged EXEC mode of the command line interface (CLI).

!(command number)

Executes a previously used command that displays it in the output of the show history command. Specify the number that displays it before the command in the show history output. You must be in the correct mode to reuse the command.

Syntax

- **!(command number)**

Default

None

Command Mode

Privileged EXEC

attribute

Modify MS-DOS file attributes to enable file transfer.

Syntax

- **attribute WORD<1-1536> + | - | R**
- **attribute WORD<1-99> + | - | R**

Command Parameters

+ | - | R

Set or remove read-only permission.

WORD<1-99>

Specifies the file name.

Default

None

Command Mode

Privileged EXEC

backup

Use this command to backup all files, including the directory of the internal flash, to the USB flash or to create a backup zip.

Syntax

- **backup configure WORD<1-99>**
- **backup intflash**

Command Parameters

configure WORD<1-99>

Copies all configuration files and packages them into a single .zip file. License files are not backed up.

intflash

Copies all files from the internal flash to the USB drive at /usb/intflash. You must disable logging to the compact flash you want to restore before you can use the backup. The system verifies that the USB flash device has enough available space to perform the backup operation. If the USB flash device does not have enough available space, the system displays an error message. The backup command uses the following filepath on the USB flash device: /usb/intflash/intflashbackup_yyyymmddhhmmss.tgz.



Note

This command does not apply to all hardware platforms. On some platforms, the USB port cannot be used for file transfer. For more information, see your hardware documentation.

Default

None

Command Mode

Privileged EXEC

boot

Restart the switch to implement configuration changes or recover from a system failure. When you restart the system, you can specify an optional configuration file to use to load the device. If no config file is specified, the run-time CLI uses the configuration file specified by the boot config choice command. The image booted is that specified by the software activate command.

Syntax

- **boot**
- **boot [config WORD<1-99>] [-y]**
- **boot config WORD<1-99>**
- **boot -y**

Command Parameters

-y

Suppresses the confirmation message before the switch restarts. If you omit this parameter, you must confirm the action before the switch restarts.

config WORD<1-99>

Specifies the software configuration device and file name in the following format:/intflash/<file>. The filename, including the directory structure, can include up to 99 characters.

Default

None

Command Mode

Privileged EXEC

cd

Change current file system directory path.

Syntax

- **cd WORD<1-99>**

Command Parameters

<1-99>

Specifies the directory location.

Default

None

Command Mode

Privileged EXEC

clear alarm

Clear the alarm database to remove old information after a condition is resolved or to reset statistics.

Syntax

- **clear alarm database**
- **clear alarm database alarm-id WORD<0-100>**
- **clear alarm statistics**

Command Parameters

database

Clears the alarm database.

database alarm-id WORD<0-100>

Specifies an alarm ID to clear.

statistics

Clears the alarm database statistics.

Default

None

Command Mode

Privileged EXEC

clear app-telemetry counter

Clear the Application Telemetry status counters.

Syntax

- **clear app-telemetry counter**
- **clear app-telemetry counter id <number>**
- **clear app-telemetry counter name <rule>**

Command Parameters

id <1-2000>

Clears the counters for the specified rule number.

name WORD<1-32>

Clears the counters for the specified rule name.

Default

None

Command Mode

Privileged EXEC

clear dvr host-entries

Clears Distributed Virtual Routing (DvR) host entries.

Syntax

- **clear dvr host-entries**
- **clear dvr host-entries ipv4 {A.B.C.D}**
- **clear dvr host-entries ipv4 {A.B.C.D} l3isid <0-16777215>**
- **clear dvr host-entries l2isid <0-16777215>**
- **clear dvr host-entries l3isid <0-16777215>**
- **clear dvr host-entries l3isid <0-16777215> ipv4 {A.B.C.D}**

Command Parameters

ipv4 {A.B.C.D}

Specifies the IPv4 address.

l2isid <0-16777215>

DvR host entries for the specific layer 2 I-SID.

l3isid <0-16777215>

DvR host entries for the specific layer 3 I-SID.

Default

None

Command Mode

Privileged EXEC

clear eapol eap

Clears the EAP client session that is learned on the switch.

Syntax

- **clear eapol eap {slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]}**
- **clear eapol eap {slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]} 0x00:0x00:0x00:0x00:0x00:0x00**
- **clear eapol eap 0x00:0x00:0x00:0x00:0x00:0x00**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Specifies the port list on which the EAP MAC is learned.

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

0x00:0x00:0x00:0x00:0x00:0x00

Specifies the MAC address for the EAP session.

Default

None.

Command Mode

Privileged EXEC

clear eapol non-eap

Clears the Non-EAP session that is learned on the switch.

Syntax

- **clear eapol non-eap**
- **clear eapol non-eap {slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]}**

- **clear eapol non-eap {slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]} 0x00:0x00:0x00:0x00:0x00:0x00**
- **clear eapol non-eap 0x00:0x00:0x00:0x00:0x00:0x00**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Specifies the port list on which the Non-EAP MAC is learnt.

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

0x00:0x00:0x00:0x00:0x00:0x00

Specifies the MAC-Address on the Non-EAP session.

Default

None

Command Mode

Privileged EXEC

clear energy-saver eee stats

Clear Energy Efficient Ethernet (EEE) statistics for all ports, or for a specific port.

Syntax

- **clear energy-saver eee stats**
- **clear energy-saver eee stats port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)

- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

Privileged EXEC

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

clear fa statistics

Clears the Fabric Attach statistics information on the switch.

Syntax

- **clear fa statistics**
- **clear fa statistics summary**
- **clear fa statistics {slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]}**

Command Parameters

summary

Displays the summary of the Fabric Attach statistics information.

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

Privileged EXEC

clear filter acl

Clear Access Control List (ACL) statistics if you no longer require previous statistics or log information.

Syntax

- **clear filter acl log**
- **clear filter acl statistics <1-2048>**
- **clear filter acl statistics <1-2048> <1-2000>**
- **clear filter acl statistics <1-2048> qos**
- **clear filter acl statistics <1-2048> security**
- **clear filter acl statistics all**
- **clear filter acl statistics default**
- **clear filter acl statistics default <1-2048>**
- **clear filter acl statistics global**
- **clear filter acl statistics global <1-2048>**

Command Parameters

<1-2048>

Specifies the ACL ID.

<1-2000>

Specifies the ACE ID.

all

Clears all statistics for all access control entries.

default <1-2048>

Clears traffic statistics for an access control entry (ACE).

global <1-2000>

Clears global statistics for an access control entry (ACE).

qos

Clears access control list (ACL) statistics for QoS access control entries (ACEs).

security

Clears access control list (ACL) statistics for Security ACEs.

Default

None

Command Mode

Privileged EXEC

clear ip arp interface

Clear the ARP timers.

Syntax

- **clear ip arp interface gigabitethernet {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **clear ip arp interface vlan <1-4059>**

Command Parameters

gigabitethernet *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

Privileged EXEC

clear ip bfd stats

Clear local and remote Bidirectional Forwarding Detection (BFD) statistics for IPv4 interfaces.

Syntax

- **clear ip bfd stats**
- **clear ip bfd stats vrf WORD<1-16>**
- **clear ip bfd stats vrfids WORD<0-512>**

Command Parameters

vrf WORD<1-16>

Specifies a VRF instance by VRF name.

vrfids WORD<0-512>

Specifies a VRF or range of VRFs by ID.

Command Mode

Privileged EXEC

clear ip dhcp-relay

Clear dhcp-relay counter.

Syntax

- **clear ip dhcp-relay counters**
- **clear ip dhcp-relay counters interface gigabitethernet {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **clear ip dhcp-relay counters interface vlan <1-4059>**
- **clear ip dhcp-relay counters vrf WORD<1-16>**
- **clear ip dhcp-relay counters vrfid <0-511>**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

counters

Clear dhcp-relay counters/statistics. No interface specified, it will clear all interface on GlobalRouter.

vlan *<1-4059>*

Clear Ip dhcp-relay statistics by vlan.

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

vrf WORD<1-16>

Clear vrf Ip dhcp-relay statistics.

vrfid <0-511>

Enter Vrf Id.

Default

None

Command Mode

Privileged EXEC

clear ip dhcp-relay counters

Clear the Ip Dhcp Relay counter.

Syntax

- **clear ip dhcp-relay counters interface gigabitethernet {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **clear ip dhcp-relay counters vrf WORD<1-16>**
- **clear ip dhcp-relay counters vrfid <0-511>**

Command Parameters

<0-511>

Specifies the VRF ID.

gigabitethernet *{slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]}*

Clear IP routes on the Interface Gigabit Ethernet.

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

WORD<1-16>

Specifies the VRF name.

Default

None

Command Mode

Privileged EXEC

clear ip dhcp-snooping binding

Clears entries from the DHCP Snooping binding table.

Syntax

- **clear ip dhcp-snooping binding dynamic**
- **clear ip dhcp-snooping binding static**

Command Parameters

dynamic

Clears dynamic entries from the DHCP Snooping binding table.

static

Clears static entries from the DHCP Snooping binding table.

Default

None

Command Mode

Privileged EXEC

clear ip mroute stats

Clear IP multicast route statistics.

Syntax

- **clear ip mroute stats**

Default

None

Command Mode

Privileged EXEC

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

clear ip msdp peer

Clears the peer connection to clear the TCP connection to the specified MSDP peer and resets all MSDP message counters.

Syntax

- **clear ip msdp peer {A.B.C.D} vrf WORD<0-16>**
- **clear ip msdp peer {A.B.C.D} vrfids WORD<0-512>**

Command Parameters

{A.B.C.D}

Specifies the MSDP peer IP address.

vrf WORD<0–16>

Specifies the VRF name.

vrfids WORD<0–512>

Specifies the VRF ID.

Default

None

Command Mode

Privileged EXEC

clear ip msdp sa-cache

Clears the MSDP foreign cache entries.

Syntax

- **clear ip msdp sa-cache vrf WORD<0-16>**
- **clear ip msdp sa-cache vrfids WORD<0-512>**

Command Parameters

group <prefix/len>

Specifies the group IP address of the SA cache entry.

peer {A.B.C.D}

Specifies the peer address.

RP {A.B.C.D}

Specifies the RP address of the SA cache entry.

source <prefix/len>

Specifies the source IP address of the SA cache entry.

vrf WORD<0-16>

Specifies the VRF name.

vrfids WORD<0–512>

Specifies the VRF ID.

Default

None

Command Mode

Privileged EXEC

clear ip msdp sa-cache peer

Clears the MSDP cache for a specific peer.

Syntax

- **clear ip msdp sa-cache peer {A.B.C.D} vrf WORD<0-16>**
- **clear ip msdp sa-cache peer {A.B.C.D} vrfids WORD<0-512>**

Default

None

Command Mode

Privileged EXEC

clear ip msdp statistics

Clear IP MSDP statistics counters.

Syntax

- **clear ip msdp statistics**
- **clear ip msdp statistics {A.B.C.D}**
- **clear ip msdp statistics {A.B.C.D} vrf WORD<0-16>**
- **clear ip msdp statistics {A.B.C.D} vrfids WORD<0-512>**
- **clear ip msdp statistics vrf WORD<0-16>**
- **clear ip msdp statistics vrfids WORD<0-512>**

Command Parameters

{A.B.C.D}

Specifies the peer address.

vrf WORD<0-16>

Specifies the VRF name.

vrfids WORD<0–512>

Specifies the VRF ID.

Default

None

Command Mode

Privileged EXEC

clear ip ospf ifstats

Clear IP statistics for OSPF interface.

Syntax

- **clear ip ospf ifstats vrf WORD<1-16>**
- **clear ip ospf ifstats vrfid <0-511>**

Command Parameters

vrf WORD<1-16>

Specifies the VRF name.

vrfid <0-511>

Specifies the VRF ID.

Default

None.

Command Mode

Privileged EXEC

clear ip ospf stats

Clear IP OSPF statistics.

Syntax

- **clear ip ospf stats vrf <WORD<1-16>**
- **clear ip ospf stats vrfid <0-511>**

Command Parameters

vrf WORD<1-16>

Specifies the VRF name.

vrfid <0-511>

Specifies the VRF ID.

Default

None

Command Mode

Privileged EXEC

clear ip route

Clear the routing table.

Syntax

- **clear ip route gigabitethernet {slot/port[/sub-port]}**
- **clear ip route vlan <1-4059>**

Command Parameters

gigabitethernet {slot/port[/sub-port]}

Clear IP routes on the Interface Gigabit Ethernet.

Identifies a single slot and port. If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

vlan *<1-4059>*

Clear IP routes on the Interface Vlan.

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

Privileged EXEC

clear secondary-ips vlan

Removes all secondary IP addresses from a VLAN.

Syntax

- **clear secondary-ips vlan <1-4059>**

Command Parameters

<1-4059>

Identifies the VLAN ID associated with the Secondary IP Interfaces.

Default

None

Command Mode

Privileged Exec

clear ip vrrp

Clear the Virtual Router Redundancy Protocol (VRRP) configuration.

Syntax

- **clear ip vrrp gigabitethernet {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} vrid <1-255>**
- **clear ip vrrp vlan <1-4059> vrid <1-255>**

Command Parameters

gigabitethernet *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs

3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

vrid <1-255>

Specifies the ID of the virtual router.

Default

None

Command Mode

Privileged EXEC

clear ipsec stats all

Clear the Internet Protocol Security (IPsec) system statistics counters.

Syntax

- **clear ipsec stats all**

Default

None

Command Mode

Privileged EXEC

clear ipv6 bfd stats

Clear local and remote Bidirectional Forwarding Detection (BFD) statistics for IPv6 interfaces.

Syntax

- **clear ipv6 bfd stats**
- **clear ipv6 bfd stats vrf WORD<1-16>**
- **clear ipv6 bfd stats vrfids WORD<0-512>**

Command Parameters

vrf WORD<1-16>

Specifies a VRF instance by VRF name.

vrfids WORD<0-512>

Specifies a VRF or range of VRFs by ID.

Command Mode

Privileged EXEC

Usage Guidelines

This command is available for demonstration purposes only. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

clear ipv6 dcache

Clear the destination cache.

Syntax

- **clear ipv6 dcache [vrf WORD<1-16> | vrfids WORD<0-512>]**
- **clear ipv6 dcache gigabitethernet {slot/port[/sub-port]} [vrf WORD<1-16> | vrfids WORD<0-512>]**
- **clear ipv6 dcache tunnel <1-2000>**
- **clear ipv6 dcache vlan <1-4059> [vrf WORD<1-16> | vrfids WORD<0-512>]**

Command Parameters

gigabitethernet {slot/port[/sub-port]}

Identifies a single slot and port. If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

tunnel <1-2000>

Specifies the tunnel ID.

vlan <1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

vrf WORD<1-16>

Clears the interface information for a particular VRF name.

vrfids WORD<0-512>

Clears the interface information for the particular VRF ids

Default

None

Command Mode

Privileged EXEC

clear ipv6 fhs snooping

Clears all Security Binding Table (SBT) entries or a particular dynamic SBT entry.

Syntax

- **clear ipv6 fhs snooping**
- **clear ipv6 fhs snooping vlan <1-4059>**
- **clear ipv6 fhs snooping vlan <1-4059> ipv6-address WORD<0-46>**

Command Parameters

ipv6-address WORD<0-46>

Clears a specific snooping entry based on its IPv6 address.

vlan *<1-4059>*

Clears snooping entries by VLAN.

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

Privileged EXEC

clear ipv6 fhs statistics all

Clears the IPv6 ND inspection statistics along with RA guard statistics and DHCPv6 Guard statistics.

Syntax

- **clear ipv6 fhs statistics all**
- **clear ipv6 fhs statistics all {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

Privileged EXEC

clear ipv6 fhs statistics dhcp-guard

Clears the DHCP-guard statistics.

Syntax

- **clear ipv6 fhs statistics dhcp-guard**
- **clear ipv6 fhs statistics dhcp-guard {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)

- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

Privileged EXEC

clear ipv6 fhs statistics nd-inspection

Clear the Neighbor Discovery inspection statistics on either a single port or a set of ports or all ports.

Syntax

- **clear ipv6 fhs statistics nd-inspection**
- **clear ipv6 fhs statistics nd-inspection {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

Privileged EXEC

clear ipv6 fhs statistics ra-guard

Clears the RA Guard statistics.

Syntax

- **clear ipv6 fhs statistics ra-guard**
- **clear ipv6 fhs statistics ra-guard {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

Privileged EXEC

clear ipv6 mroute stats

Clear IPv6 multicast route statistics.

Syntax

- **clear ipv6 mroute stats**

Default

None

Command Mode

Privileged EXEC

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

clear ipv6 neighbor-cache

Clear the neighbor cache.

Syntax

- **clear ipv6 neighbor-cache [vrf WORD<1-16> | vrfids WORD<0-512>]**
- **clear ipv6 neighbor-cache gigabitEthernet {slot/port[/sub-port]} [vrf WORD<1-16> | vrfids WORD<0-512>]**
- **clear ipv6 neighbor-cache vlan <1-4059> [vrf WORD<1-16> | vrfids WORD<0-512>]**

Command Parameters

gigabitethernet {slot/port[/sub-port]}

Identifies a single slot and port. If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

vlan <1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

vrf WORD<1-16>

Clears the interface information for a particular VRF name.

vrfids WORD<0-512>

Clears the interface information for the particular VRF ids

Default

The default is disabled.

Command Mode

Privileged EXEC

clear ipv6 ospf stats

Clear the IPv6 OSPF statistics.

Syntax

- **clear ipv6 ospf stats [vrf WORD<1-16>] [vrfids WORD<0-512>]**
- **clear ipv6 ospf stats vrf WORD<1-16>**
- **clear ipv6 ospf stats vrfids WORD<0-512>**

Command Parameters

vrf <WORD 1-16>

Specifies the VRF name.

vrfids <WORD 0-512>

Specifies VRF IDs.

Default

None

Command Mode

Privileged EXEC

clear ipv6 rip

Clear Routing Information Protocol next generation (RIPng) information for IPv6 interface.

Syntax

- **clear ipv6 rip stats**
- **clear ipv6 rip stats gigabitethernet {slot/port[/sub-port]}**
- **clear ipv6 rip stats vlan <1-4059>**

Command Parameters

stats

Clears RIPng statistics for IPv6 interface.

gigabitethernet *{slot/port[/sub-port]}*

Clears IPv6 RIPng statistics for brouter.

Identifies a single slot and port. If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

vlan *<1-4059>*

Clears IPv6 RIPng statistics for VLAN.

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

Privileged EXEC

clear ipv6 route static

Clear IPv6 static routes.

Syntax

- **clear ipv6 route static [vrf WORD<1-16> | vrfids WORD<0-512>]**

Command Parameters

vrf WORD<1-16>

Clears the interface information for a particular VRF name.

vrfids WORD<0-512>

Clears the interface information for the particular VRF ids

Default

None

Command Mode

Privileged EXEC

clear ipv6 statistics

Use this command to clear IPv6 statistics.

Syntax

- **clear ipv6 statistics all [vrf WORD<1-16> | vrfids WORD<0-512>]**
- **clear ipv6 statistics interface [vrf WORD<1-16> | vrfids WORD<0-512>]**
- **clear ipv6 statistics interface general [vrf WORD<1-16> | vrfids WORD<0-512>]**
- **clear ipv6 statistics interface general gigabitethernet {slot/port[/sub-port]} [vrf WORD<1-16> | vrfids WORD<0-512>]**
- **clear ipv6 statistics interface general loopback <1-256>**
- **clear ipv6 statistics interface general tunnel <1-2000>**
- **clear ipv6 statistics interface general vlan <1-4059>**
- **clear ipv6 statistics interface icmp**
- **clear ipv6 statistics interface icmp gigabitethernet {slot/port[/sub-port]}**
- **clear ipv6 statistics interface icmp loopback <1-256>**
- **clear ipv6 statistics interface icmp tunnel <1-2000>**
- **clear ipv6 statistics interface icmp vlan <1-4059>**
- **clear ipv6 statistics tcp [vrf WORD<1-16> | vrfids WORD<0-512>]**
- **clear ipv6 statistics udp [vrf WORD<1-16> | vrfids WORD<0-512>]**

Command Parameters

all

Clears all statistics.

general

Clears general statistics.

gigabitEthernet *{slot/port[/sub-port]}*

Clears statistics for a brouter interface.

Identifies a single slot and port. If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

icmp

Clears Internet Control Message Protocol (ICMP) statistics.

loopback <1-256>

Identifies a loopback interface.

tcp

Clears TCP statistics.

tunnel <1-2000>

Clears statistics for a tunnel.

udp

Clears UDP statistics.

vlan *<1-4059>*

Clears statistics for a tunnel.

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

vrf WORD<1-16>

Clears the interface information for a particular VRF name.

vrfids WORD<0-512>

Clears the interface information for the particular VRF ids

Default

None

Command Mode

Privileged EXEC

clear ipv6 vrrp

Clears the IPv6 VRRP configuration.

Syntax

- **clear ipv6 vrrp gigabitethernet {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} vrid <1-255>**
- **clear ipv6 vrrp vlan <1-4059> vrid <1-255>**

Command Parameters

gigabitethernet *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

vrid <1-255>

Specifies the ID of the virtual router.

Default

None

Command Mode

Privileged EXEC

clear isis stats

Clear Intermediate-System-to-Intermediate-System (IS-IS) statistics.

Syntax

- **clear isis stats**
- **clear isis stats error-counters**
- **clear isis stats packet-counters**

Command Parameters

error-counters

Clears the IS-IS stats error-counters.

packet-counters

Clears the IS-IS stats packet-counters.

Default

None

Command Mode

Privileged EXEC

clear khi

Clear the key health indicators for CPP port statistics or management instance statistics information.

Syntax

- **clear khi cpp port-statistics**
- **clear khi mgmt statistics**

Command Parameters

cpp port-statistics

Clears statistics for control packets that go to the control processor.

mgmt statistics

Clears statistics for control packets that go to the Segmented Management Instance.

Default

None

Command Mode

Privileged EXEC

clear lacp

Clear link aggregation information and statistics.

Syntax

- **clear lacp link-aggregate <1-512>**
- **clear lacp stats**
- **clear lacp stats port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

link-aggregate <1-512>

Specifies the MLT ID.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

stats

Clears lacp stats.

Default

None

Command Mode

Privileged EXEC

clear link-debounce stats

Clear Link Debounce statistics on all ports.

Syntax

- **clear link-debounce stats**

Default

None

Command Mode

Privileged EXEC

clear link-debounce stats port

Clear Link Debounce statistics on specific ports.

Syntax

- **clear link-debounce stats port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

Privileged EXEC

clear lldp

Clear Link Layer Discovery Protocol (LLDP) information.

Syntax

- **clear lldp stats [{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}] [summary]**

Command Parameters

stats

Clears LLDP statistics.

summary

Clears LLDP global statistics.

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)

- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

Privileged EXEC

clear logging

Clear the log file.

Syntax

- **clear logging**

Default

None

Command Mode

Privileged EXEC

clear mac-address-table port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} address WORD<17-17>

Clear the entries in the MAC address table.

Syntax

- **clear mac-address-table port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} address WORD<17-17> [interface vlan <1-4059>]**

Command Parameters

address WORD<17-17>

Specifies the MAC address.

interface vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all] [all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

Privileged EXEC

clear mac-address-table remote

Removes MAC entries that are marked as Remote true on both vIST peers.

Syntax

- **clear mac-address-table remote**

Default

None

Command Mode

Privileged EXEC

Usage Guidelines

For more information, see Removing MAC entries that are marked as remote true on both VIST peers.

clear mgmt statistics

Reset the statistics counters for a Segmented Management Instance.

Syntax

- **clear mgmt statistics**

Command Parameters

None

Default

None

Command Mode

Privileged EXEC

clear mlt

Clear interswitch trunking (IST) statistics.

Syntax

- **clear mlt ist stats**

Default

None

Command Mode

Privileged EXEC

clear nodealias

Clears Node Alias clients from the database.

Syntax

- **clear nodealias [client mac <x00:0x00:0x00:0x00:0x00:0x00> i-sid <0-16777215> vlan <0-4094>] [mlt <512>] [port {slot/port[/sub-port]}]**

Command Parameters

i-sid <0-16777215>

Specifies the I-SID ID.

mac <0x00:0x00:0x00:0x00:0x00:0x00:0x00>

Specifies the MAC address in hexadecimal format. The MAC address parameter does not accept MAC addresses beginning with 01:00:5e (01:00:5e:00:00:00 to 01:00:5e:ff:ff:ff inclusive).

mlt <512>

Specifies the MLT ID.

port {slot/port[/sub-port]}

Identifies a single slot and port. If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

vlan <0-4094>

Specifies the VLAN.ID.

Default

None.

Command Mode

Privileged EXEC

clear qos

Clear quality of service (QoS) information.

Syntax

- **clear qos cosq-stats**
- **clear qos cosq-stats cpu-port**
- **clear qos cosq-stats interface**
- **clear qos cosq-stats interface {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **clear qos statistics policy**

- **clear qos statistics policy <1-16000>**
- **clear qos statistics policy slot {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

<1-16000>

Specifies a policy ID.

cosq-stats

Clear qos cos queue statistics

cosq-stats cpu-port

Clear Qos Cosq Stats on cpu port.

cosq-stats interface

Clear Qos Cosq Stats on port.

cosq-stats interface *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Clear Qos Cosq Stats on port for the specified gigabit address.

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

Privileged EXEC

clear qos cosq-stats

Clear qos cos queue statistics.

Syntax

- **clear qos cosq-stats**
- **clear qos cosq-stats cpu-port**

- **clear qos cosq-stats interface**
- **clear qos cosq-stats interface {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **clear qos cosq-stats logical-intf**
- **clear qos cosq-stats logical intf isis <1-255>**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

isis <1-255>

Clears the statistics for the specified logical interface.

Default

None

Command Mode

Privileged EXEC

clear radius statistics

Clear server statistics.

Syntax

- **clear radius statistics**

Default

None

Command Mode

Privileged EXEC

clear sflow statistics

Clear sFlow statistics.

Syntax

- **clear sflow statistics**
- **clear sflow statistics collector <1-2>**

Command Parameters

collector <1-2>

Clear the sFlow statistics for the specified collector.

Default

None

Command Mode

Privileged EXEC

clear slpp

Clear SLPP Information.

Syntax

- **clear slpp stats**
- **clear slpp stats port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

stats

Clear SLPP Stats.

stats port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Clear SLPP Stats for the specified port.

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)

- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

Privileged EXEC

clear slpp stats

Clear slpp statistics.

Syntax

- **clear slpp stats**

Default

None

Command Mode

Privileged EXEC

clear spoof-detect

Clear blocked MAC addresses by spoof detect.

Syntax

- **clear spoof-detect blocked-mac 0x00:0x00:0x00:0x00:0x00:0x00**

Command Parameters

blocked-mac 0x00:0x00:0x00:0x00:0x00:0x00

Clears blocked MAC addresses by spoof detect.

Default

None

Command Mode

Privileged EXEC

clear ssh

Clear the SSH session.

Syntax

- **clear ssh <0-7>**

Command Parameters

<0-7>

Specifies the session ID.

Default

None

Command Mode

Privileged EXEC

clear ssh scp <0-7>

Clear the SCP session.

Syntax

- **clear ssh scp <0-7>**

Command Parameters

<0-7>

Specifies the session ID.

Default

None

Command Mode

Privileged EXEC

clear ssh sftp <0-7>

Clear the SFTP session.

Syntax

- **clear ssh sftp <0-7>**

Command Parameters

<0-7>

Specifies the session ID.

Default

None

Command Mode

Privileged EXEC

clear telnet

Close open Telnet sessions.

Syntax

- **clear telnet <0-7>**

Command Parameters

<0-7>

Specifies the Telnet session ID to close.

Default

None

Command Mode

Privileged EXEC

clear trace

Clear the trace file.

Syntax

- **clear trace**

Default

None

Command Mode

Privileged EXEC

clear virtual-ist stats

Clear stats for vIST.

Syntax

- **clear virtual-ist stats**

Default

None

Command Mode

Privileged EXEC

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

clear vlacp

Clears Virtual Link Aggregation Control Protocol (VLACP) information on the switch.

Syntax

- **clear vlacp flap-stats**
- **clear vlacp flap-stats port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **clear vlacp stats**
- **clear vlacp stats port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

flap-stats port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Clears the VLACP Flap Detect and Damping statistics for the VLACP ports.

stats port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Clears the VLACP information for the specific port.

Default

None.

Command Mode

Privileged EXEC

configure

Log on to Global Configuration mode.

Syntax

- **configure**
- **configure network**
- **configure network address {A.B.C.D}**
- **configure network address {A.B.C.D} filename WORD<1-239>**
- **configure network filename WORD<1-239>**
- **configure network filename WORD<1-239> address {A.B.C.D}**
- **configure terminal**

Command Parameters

network

Configures the device from a TFTP network host.

network address {A.B.C.D} filename WORD<1-239>

Specifies an address of the TFTP server.

network filename WORD<1-239> address {A.B.C.D}

Specifies the filename of the configuration file.

terminal

Configures the device from a terminal.

Default

None

Command Mode

Privileged EXEC

copy

Copy files as part of an upgrade procedure to back up files or to move files to another location.

Syntax

- **copy clilog WORD<1-255>**
- **copy running-config startup-config**
- **copy WORD<1-255> WORD<1-255>**
- **copy WORD<1-255> WORD<1-255> -y**

Command Parameters

clilog WORD<1-255>

Copies the log file to a specific location. You can specify the name and location for the log file in one of the following formats: a.b.c.d:<file>, /intflash/<file>, and /usb/<file>.

running-config startup-config

Copies running and start-up configuration.

WORD<1-255> WORD<1-255>

Source filename, a.b.c.d:<file> | /intflash/<file> | /usb/<file>.

-y

Suppresses the confirmation message before the file copies. If you omit this parameter, you are asked to confirm the action before the switch copies the file.

Default

None

Command Mode

Privileged EXEC

cp

Use this command to copy files.

Syntax

- **cp WORD<1-255> WORD<1-255>**
- **cp WORD<1-255> WORD<1-255> -y**

Command Parameters

WORD <1-255> WORD <1-255>

The first WORD<1-255>specifies the file to copy. The second WORD<1-255> uses one of the following formats: /intflash/ <file> . Word<1-255> is a string of 1-255 characters.

-y

Suppresses the confirmation message before the file copies. If you omit this parameter, you are asked to confirm the action before the switch copies the file.

Default

None

Command Mode

Privileged EXEC

delete

Use this command to delete files.

Syntax

- **delete WORD<1-255>**
- **delete WORD<1-255> -y**

Command Parameters

WORD<1-255>

Specifies the name and location of the file to delete in the following formats: /intflash/<file>, and /usb/<file>. WORD<1-255> is a string of 1-255 characters.

WORD<1-255> -y

Remove file or directory, with wildcard pattern.

-y

Suppresses the confirmation message before the file copies. If you omit this parameter, you are asked to confirm the action before the switch deletes the file.

Default

None

Command Mode

Privileged EXEC

dir

View the free space and files in flash memory.

Syntax

- **dir**
- **dir -l**
- **dir -r**
- **dir WORD<1-99>**

Command Parameters

-l

Details, dir -l [-r]

-r

Recursive, dir -r

WORD<1-99>

Directory path name, dir <path> [-l] [-r]

Default

None

Command Mode

Privileged EXEC

disable

Turns off privileged commands and returns you to the User Exec prompt.

Syntax

- **disable**
- **disable <0-15>**

Command Parameters

<0-15>

Privilege level to go to.

Default

None

Command Mode

Privileged EXEC

dos-chkdsk

Check MS DOS file system for any inconsistencies.

Syntax

- **dos-chkdsk WORD<1-99>**
- **dos-chkdsk WORD<1-99> repair**

Command Parameters

WORD<1-99>

Specifies the device name to repair.

WORD<1-99> repair

Repairs the errors found.

Default

None

Command Mode

Privileged EXEC

Usage Guidelines

If, at the end of the **dos-chkdsk WORD<1-99>** command output, you see the following choice:

```
1) Correct

2) Don't correct
```

Then, you should run the **dos-chkdsk WORD<1-99> repair** command.

dos-format

Format the external flash or USB.

Syntax

- **dos-format WORD<1-99>**

Command Parameters

WORD<1-99>

Specifies the device name to format.

Default

None

Command Mode

Privileged EXEC

editing

Simple vi line editor to modify script files

Syntax

- **editing WORD<1-99>**

Command Parameters

WORD<1-99>

Specifies the filename to edit.

Default

None

Command Mode

Privileged EXEC

Usage Guidelines

Pasting a single line using the editing function is limited to 1,700 characters. If you paste lines with more than 1,700 characters, unexpected switch behavior or switch crash can occur.

energy-saver

Activates Energy Saver manually on the switch.

Syntax

- **energy-saver activate**
- **energy-saver deactivate**

Command Parameters

activate

Activates Energy Saver manually on the switch.

deactivate

Deactivates Energy Saver manually on the switch.

Default

The default is deactivate.

Command Mode

Privileged EXEC

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

extend-time-period

Extends the 30-day Factory Default Premier Trial License period on your switch. You can run this command up to three times to extend the evaluation license in 30-day increments for an additional 90 days.

Syntax

- **extend-time-period**

Default

None

Command Mode

Privileged EXEC

flight-recorder

Perform various functions on the flight recorder data on the switch.

Syntax

- **flight-recorder all {slot [-slot][,...]}**
- **flight-recorder archive {slot [-slot][,...]}**
- **flight-recorder snapshot {slot [-slot][,...]}**
- **flight-recorder trace {slot [-slot][,...]}**

Command Parameters

all {slot[-slot][,...]}

Creates flight recorder snapshot, trace, and archive. {slot[-slot][,...]} specifies the slot number. Valid slot is 1.

archive {slot [-slot][,...]}

Creates tarball of flight recorder files, log files, config file and others. {slot [-slot][,...]} specifies the slot number.

snapshot {slot [-slot][,...]}

Takes the snapshot of flight recorder PMEM data. {slot[-slot][,...]} specifies the slot number.

trace {slot [-slot][,...]}

Takes the snapshot of always-on-trace data. {slot [-slot][,...]} specifies the slot number.

Default

None

Command Mode

Privileged EXEC

grep

Use this Unix command to search files for lines that match a given expression.

Syntax

- **grep error WORD<1-99>**
- **grep WORD<0-1536> WORD<1-99>**

Command Parameters

error WORD <1-99>

Searches for an error in a file. WORD<1-99> specifies a filename, /intflash/<file>.

WORD<0-1536> WORD<1-99>

Searches files for lines that match a given expression. WORD<0-1536> specifies the string to match.

Default

None

Command Mode

Privileged EXEC

maintenance system-action

Displays the system action.

Syntax

- **maintenance system-action WORD<1-99> execute WORD<1-99>**
- **maintenance system-action WORD<1-99> execute WORD<1-99> WORD<0-99>**

Default

None

Command Mode

Privileged EXEC

mkdir

Make directory on filesystem.

Syntax

- **mkdir WORD<1-99>**

Command Parameters

WORD<1-99>

Directory path name.

Default

None

Command Mode

Privileged EXEC

monitor ip mroute stats

Monitor IP multicast route statistics.

Syntax

- **monitor ip mroute stats [WORD<7-160> {A.B.C.D[,E.F.G.H][,...]}] [vrf WORD<1-32>] [vrfid <0-255>]**

Command Parameters

vrf WORD<1-32>

Specifies a VRF name.

vrfid <0-255>

Specifies a VRF ID.

WORD<7-160> {A.B.C.D[,E.F.G.H][,...]}

Monitor IP multicast route statistics.

Default

None

Command Mode

Privileged EXEC

monitor ip vrrp statistics

Display IP multicast statistics for the Virtual Router Redundancy Protocol (VRRP).

Syntax

- **monitor ip vrrp statistics gigabitethernet**
- **monitor ip vrrp statistics gigabitethernet {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **monitor ip vrrp statistics gigabitethernet {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} verbose**
- **monitor ip vrrp statistics gigabitethernet verbose**

Command Parameters

gigabitethernet *{slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

verbose

Specifies the complete list of configuration information.

Default

None

Command Mode

Privileged EXEC

monitor ipv6 mroute stats

Monitor Ipv6 multicast route statistics.

Syntax

- **monitor ipv6 mroute stats [WORD<7-400> {Ipv6address[,Ipv6address] [,...]}]**

Command Parameters

WORD<7-400> {Ipv6address[,Ipv6address][,...]}

Monitor IPv6 multicast route statistics.

Default

None

Command Mode

Privileged EXEC

monitor mlt error collision

Monitor MultiLink Trunking (MLT) collision error information.

Syntax

- **monitor mlt error collision**
- **monitor mlt error collision <1-512>**

Command Parameters

<1-512>

Specifies the MLT ID.

Default

None

Command Mode

Privileged EXEC

monitor mlt error main

Monitor MultiLink Trunking (MLT) general error information.

Syntax

- **monitor mlt error main**
- **monitor mlt error main <1-512>**

Command Parameters

<1-512>

Specifies the MLT ID.

Default

None

Command Mode

Privileged EXEC

monitor mlt stats interface main

Show MultiLink Trunking (MLT) interface statistics.

Syntax

- **monitor mlt stats interface main**
- **monitor mlt stats interface main <1-512>**

Command Parameters

<1-512>

Specifies the MLT ID.

Default

None

Command Mode

Privileged EXEC

monitor mlt stats interface utilization

Show MultiLink Trunking (MLT) interface statistics utilization.

Syntax

- **monitor mlt stats interface utilization**
- **monitor mlt stats interface utilization <1-512>**

Command Parameters

<1-512>

Specifies the MLT ID.

Default

None

Command Mode

Privileged EXEC

monitor ports error

Monitor port error information.

Syntax

- **monitor ports error <collision | main | ospf | verbose> [from {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]**
- **monitor ports error {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} collision [from {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]**
- **monitor ports error {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} main [from {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]**
- **monitor ports error {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} ospf [from {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]**
- **monitor ports error {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} verbose [from {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]**

Command Parameters

{*{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

collision

Monitors port collision error information.

main

Monitors port general error information, including a count of rate-limited dropped packets on products that support Storm Control.

ospf

Monitors ports general Open Shortest Path First (OSPF) information.

verbose

Monitors port extended error information.

Default

None

Command Mode

Privileged EXEC

monitor ports statistics

Monitor port statistics.

Syntax

- **monitor ports statistics {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} bridging**
- **monitor ports statistics {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} bridging from {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **monitor ports statistics {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} dhcp-relay**
- **monitor ports statistics {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} dhcp-relay from {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **monitor ports statistics {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} interface**
- **monitor ports statistics {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} interface main from {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **monitor ports statistics {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} interface utilization**
- **monitor ports statistics {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} interface utilization from {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **monitor ports statistics {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} interface verbose**
- **monitor ports statistics {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} interface verbose from {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **monitor ports statistics {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} ospf main**
- **monitor ports statistics {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} ospf main from {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

- **monitor ports statistics {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} ospf verbose**
- **monitor ports statistics {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} ospf verbose from {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **monitor ports statistics {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} rmon**
- **monitor ports statistics {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} rmon from {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **monitor ports statistics {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} routing**
- **monitor ports statistics {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} routing from {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

{*{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

bridging

Monitor port bridging statistics.

dhcp-relay

Monitors port DHCP-relay statistics.

from *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Monitors port statistics from a particular starting point.

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

interface

Monitor port interface statistics.

ospf

Monitor ports statistics for open shortest path first (OSPF) performance.

rmon

Monitor port remote monitoring (RMON) statistics.

routing

Monitor port Dynamic Host Configuration Protocol (DHCP) routing statistics.

verbose

Provides additional information when used with a command.

Default

None

Command Mode

Privileged EXEC

monitor ports statistics bridging

Monitor port bridging statistics.

Syntax

- **monitor ports statistics bridging**
- **monitor ports statistics bridging from {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

from *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Monitors port bridging statistics.

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

Privileged EXEC

monitor ports statistics dhcp-relay

Monitor port dhcp-relay statistics.

Syntax

- **monitor ports statistics dhcp-relay**
- **monitor ports statistics dhcp-relay from {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

from *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Monitors port bridging statistics from a particular starting port.

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

Privileged EXEC

monitor ports statistics interface

Monitor port interface statistics.

Syntax

- **monitor ports statistics interface main**
- **monitor ports statistics interface main from {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **monitor ports statistics interface utilization**
- **monitor ports statistics interface utilization from {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **monitor ports statistics interface verbose**
- **monitor ports statistics interface verbose from {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

from *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Monitors port DHCP-relay statistics.

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

main

Monitors port interface statistics.

utilization

Monitors port interface utilization statistics.

utilization from *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Monitors port DHCP-relay statistics from a particular starting port.

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)

- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

verbose

Monitors port interface statistics.

verbose from *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Specifies the slot and port.

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

Privileged EXEC

monitor ports statistics ospf

Monitor ports statistics for open shortest path first (OSPF) performance.

Syntax

- **monitor ports statistics ospf main**
- **monitor ports statistics ospf main from {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **monitor ports statistics ospf verbose**
- **monitor ports statistics ospf verbose from {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

main

Monitors ports statistics for OSPF main command.

main from *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Monitors port interface statistics.

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

verbose

Monitors ports statistics for OSPF verbose command.

verbose from *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Monitors port interface statistics from a particular starting port.

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

Privileged EXEC

monitor ports statistics rmon

Monitor port remote monitoring (RMON) statistics.

Syntax

- **monitor ports statistics rmon**

- **monitor ports statistics rmon from {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

from *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Monitors port interface utilization statistics.

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

Privileged EXEC

monitor ports statistics routing

Monitor port Dynamic Host Configuration Protocol (DHCP) routing statistics.

Syntax

- **monitor ports statistics routing**
- **monitor ports statistics routing from {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

from *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Monitors port interface utilization statistics from a particular starting port.

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)

- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

Privileged EXEC

more

Display contents of file.

Syntax

- **more WORD<1-99>**
- **more WORD<1-99> { binary | ascii }**

Command Parameters

{ binary | ascii }

Filename, a.b.c.d:<file> | /intflash/<file> | /usb/<file>.

WORD<1-99>

Specifies the file name in the following format: /usb/<file>. The file name, including the directory structure, can include up to 99 characters.

Default

None

Command Mode

Privileged EXEC

mv

Move or rename file or directory, with wildcard pattern.

Syntax

- **mv /intflash/<srcfile> /usb/<destfile>**
- **mv WORD<1-255> WORD<1-255>**

Command Parameters

/intflash/<srcfile>

Specifies the name of the configuration or log file on the internal flash memory. For example, test.cfg or test.log. The file name, including the directory structure, can include up to 255 characters.

/usb/<destfile>

Specifies the name of the configuration or log file when moved to the USB device. The destination file name must be lower case and have a file extension of .cfg or .log. For example, test.cfg or test.log. The file name, including the directory structure, can include up to 255 characters.

WORD<1-255> WORD<1-255>

Filename, /intflash/<file> | /usb/<file>.

Default

None

Command Mode

Privileged EXEC

pwd

Print current filesystem directory path.

Syntax

- **pwd**

Default

None

Command Mode

Privileged EXEC

rename

Use this command to rename a file.

Syntax

- **rename WORD<1-255> WORD<1-255>**

Command Parameters

WORD<1-255> WORD<1-255>

Specifies the file name to rename in the following format:/intflash/ <file> or /usb/ <file>. Word<1-255> is a string of 1-255 characters.

Default

None

Command Mode

Privileged EXEC

reset

Reset the platform to reload system parameters from the most recently saved configuration file.

Syntax

- **reset**
- **reset -cancel**
- **reset [-y] [-coredump]**
- **reset -coredump**
- **reset -in WORD<1-7>**
- **reset -y**

Command Parameters

-cancel

Cancels a delayed switch reset. You must issue this command before the delay reset timer expires.

-coredump

Creates an ssio core file and a cbcp-main.x core file before resetting the switch.

-in WORD<1-7>

Specifies the time interval, in days, hours, or minutes to wait before the switch resets. After the timer expires, the device restarts from the saved configuration file.

The syntax for the timer is [d:] [hh:]mm where days and hours are optional. If you specify a single number, like 45, the switch interprets that as minutes. If you specify two numbers separated by a colon (3:15), the switch interprets that as hours and minutes. If you specify three numbers separated by colons (4:3:15), the switch interprets that as days, hours, and minutes.

Values for hours and minutes must use two digits. For example, for 7 hours and 1 minute, use 07:01 and not 7:1. You can specify a value of 00 for hours or minutes; 2:00:00 indicates a reset in 2 days.

The maximum value is 9:23:59 (9 days, 23 hours, and 59 minutes).

-y

Suppresses the confirmation message before the switch resets. If you omit this parameter, you must confirm the action before the switch resets.

Default

None

Command Mode

Privileged EXEC

restore

Restore the internal flash from the USB device or restore configuration files stored in a backup zip file. You must disable logging to the compact flash you want to restore before you can use the restore command.

Syntax

- **restore configure WORD<1-99>**
- **restore intflash**

Command Parameters

configure WORD<1-99>

Specifies the backup configuration files to be restored.

intflash

Specifies the internal flash to be restored from the USB device.

Default

None

Command Mode

Privileged EXEC

save config

Save configuration information.

Syntax

- **save config**
- **save config backup WORD<1-99>**
- **save config file WORD<1-99>**
- **save config file WORD<1-99> verbose**
- **save config verbose**

Command Parameters

backup WORD<1-99>

Saves the specified file name and identifies the file as a backup file.

file WORD<1-99>

Specifies the file name.

verbose

Save current and default configuration.

Default

None

Command Mode

Privileged EXEC

save log

Save the log files, assuming the files use the default file names.

Syntax

- **save log**
- **save log file WORD<1-99>**

Command Parameters

file WORD<1-99>

Specifies the file name in one of the following formats: a.b.c.d: <file>, or /intflash/<file>. WORD<1-99> is a string of 1-99 characters.

Default

None

Command Mode

Privileged EXEC

save trace

Save the trace file to the card for retrieval.

Syntax

- **save trace**
- **save trace file WORD<1-99>**

Command Parameters

file WORD<1-99>

Specifies the file name in one of the following formats: a.b.c.d: <file>,or /intflash/<file> .

Default

None

Command Mode

Privileged EXEC

service-probe query dns

Query dynamic IP addresses to test domain resolution.

Syntax

service-probe query dns [primary-dynamic | secondary-dynamic | tertiary-dynamic]

Command Parameters

primary-dynamic

Specifies the primary DNS server learned through DHCP. If you do not specify a DNS server parameter, the switch uses primary-dynamic by default.

secondary-dynamic

Specifies the secondary DNS server learned through DHCP. This option sends the DNS query to the second DHCP-assigned DNS server.

tertiary-dynamic

Specifies the tertiary DNS server learned through DHCP. This option sends the DNS query to the third DHCP-assigned DNS server.

Default

If you do not specify a DNS server parameter, the switch uses primary-dynamic by default.

Command Mode

Privilege EXEC

show access-policy

Show access policy configurations.

Syntax

- **show access-policy**
- **show access-policy by-mac**
- **show access-policy snmp-group**
- **show access-policy WORD<0-15>**

Command Parameters

by-mac

Show access policy by-mac information.

snmp-group

Show access-policy snmp-group information.

WORD<0-15>

Specifies an acess policy name.

Default

None

Command Mode

Privileged EXEC

show alarm

Display the contents of the alarm log buffers.

Syntax

- **show alarm database**
- **show alarm database alarm-id WORD<0-32>**
- **show alarm database alarm-status WORD<0-32>**
- **show alarm database alarm-type WORD<0-32>**
- **show alarm database event-code <0x0-0x00FFFFFF | 0x0-0x0>**
- **show alarm database module WORD<0-100>**
- **show alarm database severity WORD<0-25>**
- **show alarm statistics**

Command Parameters

database

Shows the alarm database.

database alarm-id WORD<0-32>

Shows the alarms associated with alarm ID.

database alarm-status WORD<0-32>

Shows the alarms associated with alarm status

database alarm-type WORD<0-32>

Shows the alarms associated with type.

database event-code <0x0-0x00FFFFFF | 0x0-0x0>

Shows the alarms associated with event code.

database module WORD<0-100>

Shows the alarms associated with module.

database severity WORD<0-25>

Shows the alarms associated with severity.

statistics

Shows the alarm database statistics.

Default

None

Command Mode

Privileged EXEC

show application openapi authentication

Displays the OpenAPI authentication state.

Syntax

show application openapi authentication

Default

None

Command Mode

Privileged EXEC

Usage Guidelines

This command is used for debugging purposes. Before you can use this command, use the **dbg enable** command to enable the debug mode.

show boot config choice

Make copies of the configuration files before you upgrade the switch software.

Syntax

- **show boot config choice**

Default

None

Command Mode

Privileged EXEC

show boot config flags

Check the status of the boot configuration flags.

Syntax

- **show boot config flags**

Default

None

Command Mode

Privileged EXEC

Command Output

The **show boot config flags** command displays the following information:

Output field	Description
flags advanced-feature-bandwidth-reservation	Shows if the switch supports advanced features by reserving ports as loopback ports. If enabled, the value is low, high, or vim (where supported). If disabled, the value is false.
flags block-snmp	Shows if the switch permits Simple Network Management Protocol (SNMP) access. If enabled, the value is true. If disabled, the value is false.
flags debug-config	Shows if the switch can debug the configuration file while loading the configuration at system boot up. If disabled, the value is false. If enabled, the value shows if the debug information will be stored in a file or displayed on the console.
flags debugmode	Shows if you can enable TRACE on any port by prompting the selection on the console during boot up. If enabled, the value is true. If disabled, the value is false.
flags dvr-leaf-mode	Shows if you can configure the switch as a DvR Leaf. If enabled, the value is true. If disabled, the value is false.
flags enhancedsecure-mode	Shows if the switch operates in enhanced secure mode. If disabled, the value is false. If enabled, the value indicates either the JITC or non-JITC sub-mode.
flags factorydefaults	Shows whether the switch uses the fabric or non-fabric factory default settings at startup. If enabled, the value is true. If disabled, the value is false.
flags flow-control-mode	Shows if flow control is enabled globally. If enabled, the value is true. If disabled, the value is false.
flags ftpd	Shows if the FTP server is enabled on the switch. If enabled, the value is true. If disabled, the value is false.
flags hsecure	Shows if the switch operates in High Secure mode. If enabled, the value is true. If disabled, the value is false.
flags ipv6-egress-filter	Shows if IPv6 egress filters are enabled on the switch. If enabled, the value is true. If disabled, the value is false.
flags ipv6-mode	Shows if IPv6 mode is enabled on the switch. If enabled, the value is true. If disabled, the value is false.
flags logging	Shows if system logging is enabled on the switch. If enabled, the value is true. If disabled, the value is false.

Output field	Description
flags macsec	Shows MACsec enabled globally if you configure the boot config flag on the switch. If disabled, the value is false.
flags nni-mstp	Shows if you can configure MSTP and VLANs on network-to-network interface (NNI) ports. If enabled, the value is true. If disabled, the value is false.
flags reboot	Shows if the switch automatically reboots after a fatal error. If enabled, the value is true. If disabled, the value is false.
flags spanning-tree-mode	Shows the Spanning Tree mode enabled on the switch.
flags spbm-config-mode	Shows if you can configure SPB and IS-IS on the switch. If enabled, the value is true. If disabled, the value is false.
flags spbm-node-scaling	Shows if the switch can support an increased number of SPB Nodes per area. If enabled, the value is true. If disabled, the value is false.
flags sshd	Shows if the SSHv2 server is enabled on the switch. If enabled, the value is true. If disabled, the value is false.
flags syslog-rfc5424-format	Shows if the format of the syslog and logging outputs conform to RFC 5424. If enabled, the value is true. If disabled, the value is false.
flags telnetd	Shows if the Telnet server is enabled on the switch. If enabled, the value is true. If disabled, the value is false.
flags tftpd	Shows if the Trivial File Transfer Protocol server is enabled on the switch. If enabled, the value is true. If disabled, the value is false.
flags trace-logging	Shows if the switch creates trace logs. If enabled, the value is true. If disabled, the value is false.
flags urpf-mode	Shows if Unicast Reverse Path Forwarding (uRPF) is enabled globally. If enabled, the value is true. If disabled, the value is false.
flags verify-config	Shows if syntax checking of the configuration file is enabled on the switch. If enabled, the value is true. If disabled, the value is false.
flags vrf-scaling	Shows if the switch can support an increased number of VRFs and Layer 3 VSNs. If enabled, the value is true. If disabled, the value is false.
flags vxlan-gw-full-interworking-mode	Shows if VXLAN Gateway is enabled in Full Interworking Mode, If enabled, the value is true. If VXLAN Gateway operates in Base Interworking mode, the value is false.

Example

The following example displays a configuration for each flag.



Note
Flags displayed vary across hardware models..

```
Switch:1#show boot config flags
flags advanced-feature-bandwidth-reservation low
flags block-snmp false
flags debug-config false
flags debugmode false
flags dvr-leaf-mode false
flags enhancedsecure-mode false
flags factorydefaults false
flags flow-control-mode true
flags ftpd true
flags hsecure false
flags ipv6-egress-filter true
flags ipv6-mode false
flags logging true
flags macsec false
flags nni-mstp false
flags reboot true
flags spanning-tree-mode mstp
flags spbm-config-mode true
flags spbm-node-scaling true
flags sshd true
flags syslog-rfc5424-format true
flags telnetd true
flags tftpd true
flags trace-logging false
flags urpf-mode true
flags verify-config true
flags vrf-scaling true
flags vxlan-gw-full-interworking-mode false
```

show boot config general

Displays system information.

Syntax

- **show boot config general**

Default

None

Command Mode

Privileged EXEC

show boot config host

Display the current host configuration.

Syntax

- **show boot config host**

Default

None

Command Mode

Privileged EXEC

show boot config running-config

Displays the current boot configuration.

Syntax

- **show boot config running-config [verbose]**

Command Parameters

verbose

Includes all possible information. If you omit verbose, the system displays only the values that you changed from their default value.

Default

None

Command Mode

Privileged EXEC

show boot config sio

Displays serial port information.

Syntax

- **show boot config sio [1]**

Command Parameters

[1]

Specifies the current configuration of the serial port. Not all switch models accept a slot number.

Default

None

Command Mode

Privileged EXEC

show eapol multihost-session-stats interface

Display the manage mode parameters for the specified interface type.

Syntax

- **show eapol multihost-session-stats interface**
- **show eapol multihost-session-stats interface gigabitEthernet {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **show eapol multihost-session-stats interface vlan <1-4059>**
- **show eapol multihost-session-stats interface vlan <1-4059> {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

gigabitethernet *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

Privileged EXEC

show eapol session interface

View EAPoL session statistics to manage network performance.

Syntax

- **show eapol session interface [gigabitethernet {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}] [vlan <1-4059>]**

Command Parameters

gigabitethernet *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

Privileged EXEC

show eapol summary

Display the total number of EAP and NEAP clients without having to display all clients.

Syntax

- **show eapol summary {{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}}**
- **show eapol summary verbose**

Command Parameters

{*{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

verbose

Displays extended eapol summary information.

Default

None

Command Mode

Privileged EXEC

show energy-saver

Displays Energy Saver settings and status on the switch.

Syntax

- **show energy-saver global**
- **show energy-saver interface {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **show energy-saver savings**
- **show energy-saver schedule**

Command Parameters

global

Displays global Energy Saver settings on the switch.

interface *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all] [all]}*

Displays per-port Energy Saver settings and status on the switch.

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

savings

Displays Energy Saver power savings on the switch.

schedule

Displays information about Energy Saver schedules configured on the switch.

Default

None

Command Mode

Privileged EXEC

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

show filter acl

Display filter access control list (ACL) configuration information.

Syntax

- **show filter acl**
- **show filter acl <1-2048>**

Command Parameters

<1-2048>

Specifies the ACL ID.

Default

None

Command Mode

Privileged EXEC

show filter acl policer

Display the filter access control list (ACL) policer configuration information.

Syntax

- **show filter acl policer <1-2048> <1-2000>**

Command Parameters

policer

Specifies the policer for the flow of traffic in the switch.

<1-2000>

Specifies the ACE ID.

<1-2048>

Specifies the ACL ID.

Default

None

Command Mode

Privileged EXEC

show filter acl ace

Display the filter access control list (ACL) access control entry (ACE) configuration information.

Syntax

- **show filter acl ace**
- **show filter acl ace <1-2048>**
- **show filter acl ace <1-2048> <1-2000>**

Command Parameters

<1-2000>

Specifies the ACE ID.

<1-2048>

Specifies the ACL ID.

Default

None

Command Mode

Privileged EXEC

show filter acl action

Display the filter access control list (ACL) advanced information.

Syntax

- **show filter acl action**
- **show filter acl action <1-2048>**
- **show filter acl action <1-2048> <1-2000>**

Command Parameters

<1-2000>

Specifies the ACE ID.

<1-2048>

Specifies the ACL ID.

Default

None

Command Mode

Privileged EXEC

show filter acl arp

Display the filter access control list (ACL) ARP operation configuration information.

Syntax

- **show filter acl arp**
- **show filter acl arp <1-2048>**
- **show filter acl arp <1-2048> <1-2000>**

Command Parameters

<1-2000>

Specifies the ACE ID.

<1-2048>

Specifies the ACL ID.

Default

None

Command Mode

Privileged EXEC

show filter acl config

Review your configuration to ensure that it is correct.

Syntax

- **show filter acl config**
- **show filter acl config <1-2048>**
- **show filter acl config <1-2048> <1-2000>**

Command Parameters

<1-2000>

Specifies the ACE ID.

<1-2048>

Specifies the ACL ID.

Default

None

Command Mode

Privileged EXEC

show filter acl ethernet

Display the filter access control list (ACL) Ethernet configuration information.

Syntax

- **show filter acl ethernet**
- **show filter acl ethernet <1-2048>**
- **show filter acl ethernet <1-2048> <1-2000>**

Command Parameters

<1-2000>

Specifies the ACE ID.

<1-2048>

Specifies the ACL ID.

Default

None

Command Mode

Privileged EXEC

show filter acl ip

Display the filter access control list (ACL) IP configuration information.

Syntax

- **show filter acl ip**
- **show filter acl ip <1-2048>**
- **show filter acl ip <1-2048> <1-2000>**

Command Parameters

<1-2000>

Specifies the ACE ID.

<1-2048>

Specifies the ACL ID.

Default

None

Command Mode

Privileged EXEC

show filter acl ipv6

Display the filter access control list (ACL) IPv6 configuration information.

Syntax

- **show filter acl ipv6**
- **show filter acl ipv6 <1-2048>**
- **show filter acl ipv6 <1-2048> <1-2000>**

Command Parameters

<1-2000>

Specifies the ACE ID.

<1-2048>

Specifies the ACL ID.

Default

None

Command Mode

Privileged EXEC

show filter acl protocol

Display the filter access control list (ACL) protocol configuration information.

Syntax

- **show filter acl protocol**
- **show filter acl protocol <1-2048>**
- **show filter acl protocol <1-2048> <1-2000>**

Command Parameters

<1-2000>

Specifies the ACE ID.

<1-2048>

Specifies the ACL ID.

Default

None

Command Mode

Privileged EXEC

show filter acl statistics

View port statistics to ensure that the access control entry (ACE) operates correctly.

Syntax

- **show filter acl statistics**
- **show filter acl statistics <1-2048>**
- **show filter acl statistics <1-2048> <1-2000>**
- **show filter acl statistics <1-2048> policer**
- **show filter acl statistics <1-2048> <1-2000> policer**
- **show filter acl statistics <1-2048> qos**
- **show filter acl statistics <1-2048> security**
- **show filter acl statistics all**
- **show filter acl statistics default**
- **show filter acl statistics default <1-2048>**
- **show filter acl statistics default <1-2048> policer**
- **show filter acl statistics default <1-2048> policer**
- **show filter acl statistics default <1-2048> policer**
- **show filter acl statistics global**
- **show filter acl statistics global <1-2048>**

Command Parameters

security

Shows ACL statistics for Security ACEs.

<1-2000>

Specifies the ACE ID.

<1-2048>

Specifies the ACL ID.

all

Shows all statistics for all access control entries.

default

Shows traffic statistics for access control entries.

global

Shows global statistics for access control entries.

policer

Shows policer statistics for access control entries.

qos

Shows statistics for Quality of Service (QoS) access control entries.

Default

None

Command Mode

Privileged EXEC

Command Output

The **`show filter acl statistics`** command displays the following information:

Parameter	Description
Acl ID	Specifies the identifier for the ACL.
Acl Name	Specifies the name for the ACL.
Acl Type	Specifies the ACL type.
Acl Sec Packets	Specifies the ACL Security packets.
Acl Sec Bytes	Specifies the ACL Security bytes.
Acl QoS Packets	Specifies the ACL QoS packets.
Acl QoS Bytes	Specifies the ACL QoS bytes.
Acl Packets	Specifies the total ACL packets.
Acl Bytes	Specifies the total ACL bytes.
Primary Bank Packets	Specifies the total Primary Bank ACL packets.

Parameter	Description
Secondary Bank Packets	Specifies the total Secondary Bank ACL packets.
Primary Bank Bytes	Specifies the total Primary Bank ACL bytes.
Secondary Bank Bytes	Specifies the total Secondary Bank ACL bytes.

The **show filter acl statistics ACLID ACEID policer** command displays the following information:

Parameter	Description
Acl ID	Specifies the identifier for the ACL.
Ace ID	Specifies the identifier for the ACE.
Packets	Specifies the total number of packets.
Bytes	Specifies the total number of bytes.
Green Packets	Specifies the packets with transfer rate less than the service rate.
Green Bytes	Specifies the bytes with transfer rate less than the service rate.
Yellow Packets	Specifies the packets with transfer rate less than the peak rate.
Yellow Bytes	Specifies the bytes with transfer rate less than the peak rate.
Red Packets	Specifies the packets with transfer rate more than the peak rate.
Red Bytes	Specifies the bytes with transfer rate more than the peak rate.

Examples

```
Switch:1#show filter acl statistics 3 3 policer
=============================================================================================================
                            Acl Ace Policer Table
=============================================================================================================
Acl Id  Ace Id  Packets    Bytes      Green      Green      Yellow     Yellow     Red        Red
                                      Packets    Bytes      Packets    Bytes      Packets    Bytes
-------------------------------------------------------------------------------------------------------------
3       3    29964026      106591916  142584     14254      142574     277225     28869904   10275810600

Switch:1#show filter acl statistics all
=============================================================================================================
                          Acl Default Statistics Table
=============================================================================================================
Acl Id  Acl Name    Acl Type  Primary Bank  Primary Bank  Secondary Bank   Secondary Bank   Acl       Acl
                              Packets       Bytes         Packets          Bytes            Packets   Bytes
-------------------------------------------------------------------------------------------------------------
1       ACL-1       inVlan    1360          92480         1360             92480            2720      184960

Displayed 1 of 1 entries
```

show fulltech

Display the output of all show commands and, optionally, capture the output to a file. You can limit the display to Key Health Indicator (KHI) show commands.

The command output includes a recursive listing of filesystem contents.

Syntax

- **show fulltech**
- **show fulltech file WORD<1-99>**
- **show fulltech khi**
- **show fulltech khi file WORD<1-99>**

Command Parameters

file WORD<1-99>

Specifies the file name in the form /intflash/<file> or /usb/<file> {string length {1..99} }.

khi

Display output only from KHI show commands.

Default

None

Command Mode

Privileged EXEC

show history

Shows a list of previously used commands. You can use this command in any mode, beginning with Privileged EXEC. The output shows the last 32 commands used in the active session.

Syntax

- **show history**

Default

None

Command Mode

Privileged EXEC

show interfaces gigabitethernet

Show configuration information for GigabitEthernet ports.

Syntax

- **show interfaces gigabitEthernet**
- **show interfaces gigabitEthernet {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **show interfaces gigabitEthernet {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} <1-4059>**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

Privileged EXEC

show interfaces gigabitethernet auto-sense

Displays the Auto-sense status and state on a port.

Syntax

- **show interfaces gigabitethernet auto-sense [<1-4059>] [{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]**

Command Parameters

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

Privileged EXEC

Command Output

The **show interfaces gigabitethernet auto-sense** command displays the following information:

Output field	Description
PORT NUM	Displays the slot and port number.
AUTO-SENSE STATUS	Displays the administrative status of Auto-sense on the port.
AUTO-SENSE STATE	Displays the operational state of Auto-sense on the port.
AUTO-SENSE PORT-DATA-ISID	Displays the port Data I-SID, if configured. The port configuration takes precedence over a globally configured Data I-SID.
AUTO-SENSE PORT-WAIT-INTERVAL	Displays the wait interval configured on the port. The port configuration takes precedence over a globally configured wait-interval.
AUTO-SENSE NO-NNI	Displays if the switch blocks the Auto-sense port from sending Fabric Connect LLDP TLVs and prevents the port from transitioning to the SD-WAN and NNI states.

Example

The following example displays the output for ports 1/1 through 1/5.

```
Switch:1>enable
Switch:1#show interfaces gigabitethernet auto-sense 1/1-1/5
================================================================================================
                                Port Auto-sense
================================================================================================
------------------------------------------------------------------------------------------------
PORT     AUTO-SENSE   AUTO-SENSE         AUTO-SENSE       AUTO-SENSE         AUTO-SENSE
NUM      STATUS       STATE              PORT-DATA-ISID   PORT-WAIT-INTERVAL NO-NNI
------------------------------------------------------------------------------------------------
1/1      Enable       FA-PROXY-RING      --               20                 Disable
1/2      Enable       SD-WAN              --              10                 Disable
1/3      Enable       DOWN               --               10                 Disable
1/4      Enable       DOWN               --               10                 Disable
1/5      Disable      OFF                --               10                 Disable
```

show interfaces gigabitethernet auto-speed

Displays the current state of auto-speed on a port or ports.

Syntax

show interfaces gigabitethernet auto-speed [port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

Privileged EXEC

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine User Guide*.

show interfaces gigabitethernet channelize

Display port-channelization information. Not all hardware platforms support this feature. For information about hardware support, see your hardware documentation.

Syntax

- **show interfaces gigabitEthernet channelize**
- **show interfaces gigabitEthernet channelize {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **show interfaces gigabitEthernet channelize detail**
- **show interfaces gigabitEthernet channelize detail {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)

- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

[port *{slot/port[-slot/port][,...][slot/all][all]}***]**

Specifies a specific outgoing interface to use by IP address.

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

detail

Display the detailed channelization information.

Default

None

Command Mode

Privileged EXEC

show interfaces gigabitethernet config

Displays the configuration for specific ports such as port type, diff-serv, QoS level, MLT ID, and the Layer 3 trusted/untrusted information for a gigabitEthernet interface.

Syntax

- **show interfaces gigabitEthernet config**
- **show interfaces gigabitEthernet config <1-4059>**
- **show interfaces gigabitEthernet config {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

Privileged EXEC

show interfaces gigabitethernet error

Show general error information for the port.

Syntax

- **show interfaces GigabitEthernet error [{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]**
- **show interfaces GigabitEthernet error collision {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **show interfaces GigabitEthernet error ospf {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **show interfaces GigabitEthernet error verbose {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

collision

Show port collision error information.

ospf

Show port ospf error information.

verbose

Show port error information. Display priority-based flow control pause transmit and receive counter.

Default

None

Command Mode

Privileged EXEC

Command Output

The **`show interfaces gigabitethernet error`** command without optional parameters displays the following information:

Output field	Description
PORT NUM	Displays the port number.
ERROR ALIGN	Displays the total number of frames received on the port that are not an integral number of octets.
ERROR FCS	Displays the total number of frames received on the port that do not pass the FCS check.
FRAMES LONG	Displays the number of frames received on the port that exceed the maximum frame size.
TOO SHORT	Displays the number of frames received on the port that are less than the minimum frame size.

Output field	Description
LINK FAILURE	Displays the total number of link errors on the port.
CARRIER SENSE	Displays the number of times that the carrier sense condition was lost or never asserted when attempting to transmit a frame on the port.
CARRIER ERROR	Displays the total number of carrier errors on the port.
SQETEST ERRORS	Displays the number of times the Signal Quality Error (SQE) Test error message is generated.
IN DISCARD	Displays the number of packets the port discarded.
RATE-LIMIT DROP-COUNTER **Note:** Exception: does not display on 5320-16P-2MXT-2X or 7830 Series	Displays the number of packets dropped on the port because they exceeded the configured rate limit.

The **`show interfaces gigabitethernet error ospf`** command displays the following information:

Output field	Description
PORT NUM	Displays the port number.
VERSION MISMATCH	Displays the number of version mismatches this interface receives.
AREA MISMATCH	Displays the number of area mismatches this interface receives.
AUTHTYPEMISMATCH	Displays the number of AuthType mismatches this interface receives.
AUTH FAILURES	Displays the number of authentication failures.
NET_MASK MISMATCH	Displays the number of net mask mismatches this interface receives.
HELLOINT MISMATCH	Displays the number of hello interval mismatches this interface receives.
DEADINT MISMATCH	Displays the number of dead interval mismatches this interface receives.
OPTION MISMATCH	Displays the number of options mismatches this interface receives.

Example

The following example displays **show interfaces gigabitethernet error** command output for port 1/15.

```
Switch:1>enable
Switch:1#show interfaces gigabitethernet error 1/15
================================================================================
                               Port Ethernet Error
================================================================================
PORT ERROR ERROR FRAMES TOO   LINK    CARRIER CARRIER SQETEST IN     RATE-LIMIT
NUM  ALIGN FCS   LONG   SHORT FAILURE SENSE   ERROR   ERRORS DISCARD DROP-COUNTER
--------------------------------------------------------------------------------
1/15  0    0     0      0     2       0       0       0       7800    780
```

show interfaces gigabitethernet fdb-entry

Show the forwarding database (FDB) entries for the port.

Syntax

- **show interfaces gigabitEthernet fdb-entry**
- **show interfaces gigabitEthernet fdb-entry <1-4059>**
- **show interfaces gigabitEthernet fdb-entry {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

Privileged EXEC

show interfaces gigabitethernet high-secure

Show the high-secure configuration for the port.

Syntax

- **show interfaces gigabitethernet high-secure**
- **show interfaces gigabitEthernet high-secure {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} <1-4059>**
- **show interfaces gigabitethernet high-secure <1-4059>**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

Privileged EXEC

show interfaces gigabitethernet interface

Show general port information.

Syntax

- **show interfaces gigabitEthernet interface**
- **show interfaces gigabitEthernet interface <1-4059>**
- **show interfaces gigabitEthernet interface {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} <1-4059>**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

Privileged EXEC

show interfaces gigabitEthernet i-sid

Display all configured service instance identifiers (I-SID) on port.

Syntax

- **show interfaces gigabitEthernet i-sid {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

Privileged EXEC

Command Output

The **show interfaces gigabitEthernet i-sid** command displays the following information:

Output field	Description
PORTNUM	Specifies the port number.
IFINDEX	Specifies a value that uniquely identifies the port.
ISID ID	Specifies the service interface identifier (I-SID).
VLANID	Specifies the backbone VLAN.
C-VID	Specifies the customer VLAN ID.
ISID TYPE	Specifies the type of I-SID.
ORIGIN	Specifies the origin of the service associated with the I-SID interface.
ISID NAME	Specifies the name of the I-SID.
BPDU	Specifies the BPDU forward option for the untagged traffic port.
MAC SUNI	Specifies the Switched UNI MAC address.

Example

The following example shows the configured service instance identifiers (I-SID) on a port.

```
Switch:1#show interfaces gigabitEthernet i-sid
================================================================================
                          PORT Isid Info
================================================================================
                ISID                    ISID                          ISID              MAC
PORTNUM IFINDEX ID       VLANID C-VID   TYPE     ORIGIN              NAME        BPDU  SUNI
--------------------------------------------------------------------------------
1/1     192     27       N/A    4000    ELAN     C  ---  -  ---  -  ISID-27           FALSE
1/1     192     270      N/A    4001    ELAN     C  ---  -  ---  -  ISID-270          FALSE
1/1     192     309      N/A    309     ELAN     C  ---  -  ---  -  ISID-309          FALSE
1/1     192     401      N/A    401     ELAN     C  ---  -  ---  -  ISID-401          FALSE
1/1     192     1001     N/A    1001    ELAN     C  ---  -  ---  -  ISID-1001         FALSE
1/1     192     1111     N/A    1111    ELAN     C  ---  -  ---  -  ISID-1111         FALSE
1/1     192     1121     N/A    1121    ELAN     C  ---  -  ---  -  ISID-1121         FALSE
1/1     192     1201     N/A    1201    ELAN     C  ---  -  ---  -  ISID-1201         FALSE
1/1     192     2001     N/A    2001    ELAN     C  ---  -  ---  -  ISID-2001         FALSE
1/2     193     38       N/A    4000    ELAN     C  ---  -  ---  -  ISID-38           FALSE
1/2     193     310      N/A    310     ELAN     C  ---  -  ---  -  ISID-310          FALSE
1/2     193     380      N/A    4001    ELAN     C  ---  -  ---  -  ISID-380          FALSE
1/2     193     402      N/A    402     ELAN     C  ---  -  ---  -  ISID-402          FALSE

13 out of 152 Total Num of i-sid endpoints displayed

ORIGIN Legend:
C: manually configured; D: discovered by FA or EPT
M: FA management; E: discovered by EAP; A: auto-sense
l: discover by local switch  r: discover by remote VIST switch
```

show interfaces gigabitethernet limit-fdb-learning

Show the configuration for the limit forwarding database (FDB) learning feature.

Syntax

- **show interfaces gigabitEthernet limit-fdb-learning [<1-4059>] [{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

Privileged EXEC

show interfaces gigabitethernet link-debounce

Display Link Debounce information for specific ports.

Syntax

- **show interfaces gigabitEthernet link-debounce [{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

Privileged EXEC

Command Output

The **show interfaces gigabitEthernet link-debounce** command displays the following information:

Output field	Description
PORT NUM	Displays the port number.
LINK-DEBOUNCE STATUS	Displays if Link Debounce for the port is enabled or disabled.
LINK-DEBOUNCE TIMER MILLISECONDS	Displays the timer in milliseconds.
DEBOUNCE COUNT	Displays the count when a Link Debounce update occurs.
DEBOUNCE SUCCEEDED	Displays the count when the link is restored during the Link Debounce timer.

Example

Display the Link Debounce configuration for ports 1/1 through 1/4.

```
Switch:1>enable
Switch:1#show interfaces gigabitEthernet link-debounce 1/1-1/4
================================================================================
                              Port link debounce
================================================================================
--------------------------------------------------------------------------------
PORT     LINK-DEBOUNCE      LINK-DEBOUNCE         DEBOUNCE    DEBOUNCE
NUM      STATUS             TIMER MILLISECONDS    COUNT       SUCCEEDED
--------------------------------------------------------------------------------
1/1      Enable             1500                  0           0
1/2      Enable             300000                0           0
1/3      Disable            --                    0           0
1/4      Enable             4000                  0           0
```

show interfaces gigabitethernet name

Show port names and general configuration information.

Syntax

- **show interfaces gigabitEthernet name**
- **show interfaces gigabitEthernet name <1-4059>**
- **show interfaces gigabitEthernet name {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

Privileged EXEC

show interfaces gigabitethernet ospf

Shows OSPF port information.

Syntax

- **show interfaces gigabitEthernet ospf**
- **show interfaces gigabitEthernet ospf <1-4059>**
- **show interfaces gigabitEthernet ospf {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)

- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

Privileged EXEC

show interfaces gigabitethernet private-vlan

Shows Private VLAN information for the port.

Syntax

- **show interfaces gigabitethernet private-vlan {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **show interfaces gigabitethernet private-vlan <2-4059>**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

<2-4059>

Specifies the VLAN ID in the range of 2 to 4059. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1. By default, the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998.

Default

None

Command Mode

Privileged EXEC

show interfaces gigabitethernet rate-limit

Show rate-limit configuration information for the port.

Syntax

- **show interfaces gigabitEthernet rate-limit [broadcast | multicast | unknown-uc]**
- **show interfaces gigabitEthernet rate-limit [<1-4059> | {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]**

Command Parameters

[broadcast | multicast | unknown-uc]

Filters the output for the selected traffic type.

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs

3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

Privileged EXEC

Command Output

The **`show interfaces gigabitethernet rate-limit`** command displays the following information:

Output field	Description
PORT	Displays the port number.
TYPE	Displays the type of traffic being rate limited, either broadcast, unknown unicast, or multicast traffic.
PPS-RATE	Displays the allowed traffic rate imit for the port in packets per second (pps).
ENABLED/DISABLED	Displays if rate limiting is enabled or disabled.
SHUTDOWN **Note:** Exception: does not display on 5320-16P-2MXT-2X or 7830 Series.	Displays the configured time, in seconds, that the port remains in the shutdown state after Storm Control detects dropped packets, if port shut down is enabled.
SHUTDOWN THRESHOLD **Note:** Exception: does not display on 5320-16P-2MXT-2X or 7830 Series.	Displays the threshold value for the delta of dropped packets per polling interval that triggers the shut down.
SECS SINCE SHUTDOWN **Note:** Exception: does not display on 5320-16P-2MXT-2X or 7830 Series.	Displays the elapsed time since the port entered the shutdown state.
TRAP-INTERVAL **Note:** Exception: does not display on 5320-16P-2MXT-2X or 7830 Series.	Displays the configured frequency, in polling cycles, of SNMP trap generation after Storm Control detects dropped packets. A value of 0 indicates trap generation is disabled.

Example

The following example displays rate-limit configuration information for port 1/15.

```
Switch:1>show interfaces gigabitEthernet rate-limit 1/15
================================================================================================
                              Port Rate(PPS) Limit
================================================================================================
                                                                SHUTDOWN   SECS SINCE
PORT  TYPE        PPS-RATE ENABLED/DISABLED  SHUTDOWN  THRESHOLD  SHUTDOWN  TRAP-INTERVAL
------------------------------------------------------------------------------------------------
1/15  BROADCAST   900      ENABLED            90        1          0        10
1/15  MULTICAST   900      ENABLED            90        1          0        10
1/15  UNKNOWN-UC  900      ENABLED            90        1          0        10
```

show interfaces gigabitethernet shape

Show the configuration for egress rate-limiting on the port.

Syntax

- **show interfaces gigabitEthernet shape**
- **show interfaces gigabitEthernet shape {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

Privileged EXEC

show interfaces gigabitethernet slpp

Display the Simple Loop Prevention Protocol (SLPP) configuration information for the port.

Syntax

- **show interfaces gigabitEthernet slpp**
- **show interfaces gigabitEthernet slpp {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

Privileged EXEC

show interfaces gigabitethernet state

Shows the state of the port.

Syntax

- **show interfaces gigabitEthernet state**
- **show interfaces gigabitEthernet state <1-4059>**
- **show interfaces gigabitEthernet state {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)

- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

Privileged EXEC

show interfaces gigabitethernet statistics

Display the statistics of a port, for all ports, or for a VLAN.

Syntax

- **show interfaces gigabitEthernet statistics**
- **show interfaces gigabitEthernet statistics {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **show interfaces gigabitEthernet statistics rate-limiting**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

Privileged EXEC

show interfaces gigabitethernet statistics dhcp-relay

Show Dynamic Host Configuration Protocol (DHCP) Relay information to view DHCP parameter information for one port, for all ports, or for a VLAN.

Syntax

- **show interfaces gigabitEthernet statistics dhcp-relay**
- **show interfaces gigabitEthernet statistics dhcp-relay {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **show interfaces gigabitEthernet statistics dhcp-relay vrf WORD<1-16>**
- **show interfaces gigabitEthernet statistics dhcp-relay vrfids WORD<0-512>**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

vrf WORD<1-16>

Displays all statistics by port.

vrfids WORD<0-512>

Specifies the slot and the port number.

Default

None

Command Mode

Privileged EXEC

Command Output

The **show interfaces gigabitethernet statistics dhcp-relay** command displays the following information:

Output field	Description
PORT_NUM	Indicates the port number.
VRF NAME	Identifies the VRF
NUMREQUEST	Indicates the total number of DHCP requests on this interface
NUMREPLY	Indicates the total number of DHCP replies on this interface.

show interfaces gigabitethernet statistics lacp

Display individual Link Aggregation Control Protocol (LACP) statistics for specific ports to manage network performance.

Syntax

- **show interfaces gigabitEthernet statistics lacp**
- **show interfaces gigabitEthernet statistics lacp {slot/port[/sub-port] [-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

Privileged EXEC

Command Output

The **show interfaces gigabitethernet statistics lacp** command displays the following information:

Output field	Description
PORT_NUM	Indicates the port number.
TX LACPDU	The count of transmitted LACP data units.
RX LACPDU	The count of received LACP data units.
TX MARKERPDU	The count of transmitted marker protocol data units.
RX MARKERPDU	The count of received marker protocol data units.
TX MARKERRESPPDU	The count of transmitted marker protocol response data units.
RX MARKERRESPPDU	The count of received marker protocol response data units.
RX UNKNOWN	The count of received unknown frames.
RX ILLEGAL	The count of received illegal frames.

show interfaces gigabitethernet statistics rmon

Display individual Remote Network Monitoring (RMON) statistics for specific ports to manage network performance.

Syntax

- **show interfaces gigabitEthernet statistics rmon**
- **show interfaces gigabitEthernet statistics rmon {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **show interfaces gigabitEthernet statistics rmon history**
- **show interfaces gigabitEthernet statistics rmon history {{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)

- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

history

Displays all statistics by port.

history *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

Privileged EXEC

Command Output

The **show interfaces GigabitEthernet statistics rmon** command displays the following information:

Output field	Description
PORT NUM	Indicates the port number.
OCTETS	The total number of octets of data (including those in bad packets) received on the network (excluding framing bits but including FCS octets).
PKTS	The total number of packets (including bad packets, broadcast packets, and multicast packets) received.

Output field	Description
MULTICAST	The total number of packets received that were directed to a multicast address. This number does not include packets directed to the broadcast address.
BROADCAST	The total number of packets received that were directed to the broadcast address. This number does not include multicast packets.
CRC ALLIGN	The total number of packets received that had a length (excluding framing bits, but including FCS octets) between 64 and 1518 octets, inclusive, but had either a bad Frame Check Sequence (FCS) with an integral number of octets (FCS Error), or a bad FCS with a nonintegral number of octets (Alignment Error).
UNDERSIZE	The total number of packets received that were less than 64 octets long (excluding framing bits, but including FCS octets) and were otherwise well formed.
OVERSIZE	The total number of packets received that were longer than 1518 octets (excluding framing bits, but including FCS octets) and were otherwise well formed.
FRAGMENT	The total number of packets received that were less than 64 octets in length (excluding framing bits but including FCS octets) and had either a bad Frame Check Sequence (FCS) with an integral number of octets (FCS Error) or a bad FCS with a nonintegral number of octets (Alignment Error).
COLLISION	An estimated value for the total number of collisions on this Ethernet segment.

show interfaces gigabitethernet statistics verbose

Displays individual verbose statistics for specific ports to manage network performance.

Syntax

- **show interfaces gigabitEthernet statistics verbose**
- **show interfaces gigabitEthernet statistics verbose {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

Privileged EXEC

Command Output

The **show interfaces gigabitethernet statistics verbose** command displays the following information:

Output field	Description
PORT_NUM	Indicates the port number.
IN_UNICAST	Specifies the number of inbound Unicast packets.
OUT_UNICAST	Specifies the number of outbound Unicast packets.
IN_MULTICAST	Specifies the number of inbound Multicast packets.
OUT_MULTICAST	Specifies the number of Multicast packets.
IN_BRDCST	Specifies the number of inbound broadcast packets.
OUT_BRDCST	Specifies the number of outbound broadcast packets.
IN_LSM	Specifies the total number of Link State Messaging (LSM) packets delivered.
OUT_LSM	Specifies the total number of Link State Messaging (LSM) packets transmitted.

Example

The following example displays the statistics for various ports.

```
Switch:1>enable
Switch:1#show interfaces gigabitethernet statistics verbose

Please widen the terminal for optimal viewing of data.

================================================================================================
                       Port Stats Interface Extended
================================================================================================
PORT_NUM IN_UNICST OUT_UNICST IN_MULTICST  OUT_MULTICST IN_BRDCST OUT_BRDCST IN_LSM OUT_LSM
------------------------------------------------------------------------------------------------
1/1      0         0          0           0            0          0          0       0
1/2      11421     10         0           255132       154        412502     0       0
1/3      0         0          0           0            0          0          0       0
1/4      0         0          0           0            0          0          0       0
1/5      0         0          0           0            0          0          0       0
1/6      0         0          0           0            0          0          0       0
1/7      0         0          0           0            0          0          0       0
1/8      0         0          0           0            0          0          0       0
1/9      0         0          0           0            0          0          0       0
1/10     0         0          0           0            0          0          0       0
1/11     0         0          0           0            0          0          0       0
1/12     49811     4388       13200       730098       0          0          0       0

--More-- (q = quit)
```

show interfaces gigabitethernet statistics vlacp

Display individual Virtual Link Aggregation Control Protocol (VLACP) statistics for specific ports to manage network performance.

Syntax

- **show interfaces gigabitEthernet statistics vlacp [history] [{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]**

Command Parameters

history

Displays the port counter profile.

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

Privileged EXEC

Command Output

The **show interfaces gigabitethernet statistics vlacp** command displays the following information:

Output field	Description
PORT NUM	Shows the slot and port number.
TX VLACPDU	Shows the number of VLACPDUs transmitted on the port.
RX VLACPDU	Shows the number of valid VLACPDUs received on the port.
SEQNUM MISMATCH	Shows the number of mismatched VLACPDUs in terms of received sequence numbers on the port.

show interfaces gigabitethernet vlan

Show VLAN information for the port.

Syntax

- **show interfaces gigabitEthernet vlan**
- **show interfaces gigabitEthernet vlan <1-4059>**
- **show interfaces gigabitEthernet vlan {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

Privileged EXEC

show interfaces gigabitethernet vrfs

Show VRF-association information for the port..

Syntax

- **show interfaces gigabitEthernet vrfs**
- **show interfaces gigabitEthernet vrfs {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **show interfaces gigabitEthernet vrfs vrf WORD<1-16>**
- **show interfaces gigabitEthernet vrfs vrfids WORD<0-512>**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

vrf WORD<1-16>

Specifies a VRF instance by name.

vrfids WORD<0-512>

Specifies a range of VRFs by ID number.

Default

None

Command Mode

Privileged EXEC

show interfaces gigabitethernet l1-config

Show Layer 1 configuration information for the port.

Syntax

- **show interfaces gigabitEthernet l1-config**
- **show interfaces gigabitEthernet l1-config {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} <1-4059>**
- **show interfaces gigabitEthernet l1-config <1-4059>**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

Privileged EXEC

show interfaces loopback

Show loopback interface information.

Syntax

- **show interfaces loopback**
- **show interfaces loopback vrfids [WORD <0-512>]**
- **show interfaces loopback vrfs [WORD <1-16>]**

Command Parameters

vrfids WORD<0-512>

Displays loopback information for the VRF ID.

vrfs WORD<1-16>

Displays loopback information for the VRF name.

Default

None

Command Mode

Privileged EXEC

Examples

The output for this command changes depending on where the IPv4 interface is configured: GlobalRouter, traditional VRF, or Segmented VRF. Output for traditional and Segmented VRFs includes an ACCESS column. The ACCESS column displays the VRF segment name for entries within a Segmented VRF, based on the access level of the entry. If the VRF is not segmented, the output displays the standard VRF name. The output for a Segmented VRF also includes separators for the trusted and unrestricted segments.

The following output shows GlobalRouter and IPv6 loopback interfaces.

```
Switch:1#show interfaces loopback

================================================================================================
                              Circuitless IP Interface - GlobalRouter
================================================================================================
INTF IP_ADDRESS      NET_MASK          OSPF    PIM     AREA_ID     IF   IP             MULTI-AREA
ID                                     STATUS  STATUS              INDX NAME           VIRTUAL LINK
------------------------------------------------------------------------------------------------
1    2.2.2.2         255.255.255.255   disable disable 0.0.0.0     1344 Virtual-link Remote
2    2.3.4.5         255.255.255.255   disable disable 0.0.0.0     1345
15   192.0.2.2       255.255.255.0     disable disable 0.0.0.0     1358 EXTR
================================================================================================
```

```
                                          Loopback Ipv6 Interface
=================================================================================================================================
IF   VRF          Descr         VLAN PHYSICAL       ADMIN   OPER  TYPE  MTU  HOP REACHABLE   RETRANSMIT  IPSEC
INDX NAME                       ADDRESS             STATE   STATE           LMT TIME        TIME        STATE
---------------------------------------------------------------------------------------------------------------------------------
1234 GREEN        CLIPv6-11     00:00:00:00:00:0b   enable  up    ETHER 1500 64  30000       1000        disable
=================================================================================================================================
                                          Loopback IPv6 Address
=================================================================================================================================
IPV6 ADDRESS/PREFIX LENGTH   LOOPBACK-ID  TYPE     ORIGIN     STATUS        VALID      PREF        NAME
                                                                            LIFETIME   LIFETIME
---------------------------------------------------------------------------------------------------------------------------------
2001:DB8:2000::1/128         C-11         UNICAST  MANUAL     PREFERRED     INF        INF         EXTRSER200
```

The following output shows loopback interfaces configured in a Segmented VRF.

```
Switch:1#show interfaces loopback vrfs vrf1
=================================================================================================================================
                                      Circuitless IP Interface - VRF vrf1
=================================================================================================================================
INTF IP_ADDRESS      NET_MASK        OSPF    PIM         AREA_ID         IF   IP                                    ACCESS
ID                                   STATUS  STATUS                      INDX NAME
---------------------------------------------------------------------------------------------------------------------------------
[VRF Segment Lookup for: trusted]:

11   11.11.11.11     255.255.255.255 disable disable     0.0.0.0         1354                                  vrf1
---------------------------------------------------------------------------------------------------------------------------------
[VRF Segment Lookup for: unrestricted]:

22   2.22.2.2        255.255.255.255 disable disable     0.0.0.0         1365                                  vrf1-unr
=================================================================================================================================
                                          Loopback Ipv6 Interface
=================================================================================================================================
IF   VRF              Descr         VLAN PHYSICAL          ADMIN   OPER  TYPE  MTU  HOP REACHABLE   RETRANSMIT  IPSEC
INDX NAME                           ADDRESS                STATE   STATE           LMT TIME        TIME        STATE
---------------------------------------------------------------------------------------------------------------------------------
=================================================================================================================================

                                          Loopback IPv6 Address
=================================================================================================================================
IPV6 ADDRESS/PREFIX LENGTH                  LOOPBACK-ID  TYPE    ORIGIN    STATUS    VALID    PREF     NAME
                                                                                       LIFETIME LIFETIME
---------------------------------------------------------------------------------------------------------------------------------
```

show interfaces mgmtethernet

Show configuration information for MgmtEthernet ports.

Syntax

- **show interfaces mgmtEthernet**

Default

None

Command Mode

Privileged EXEC

Usage Guidelines

This command only applies to hardware with a dedicated physical management interface.

show interfaces mgmtethernet config-L1

Show port config-L1 information.

Syntax

- **show interfaces mgmtethernet config-L1**

Default

None

Command Mode

Privileged EXEC

Usage Guidelines

This command only applies to hardware with a dedicated physical management interface.

show interfaces mgmtethernet error

Show port general error information.

Syntax

- **show interfaces mgmtethernet error {collision|verbose}**

Command Parameters

collision

Shows management port collision error information.

verbose

Displays all statistics by management port.

Default

None

Command Mode

Privileged EXEC

Usage Guidelines

This command only applies to hardware with a dedicated physical management interface.

show interfaces mgmtethernet pluggables

Display transceiver information for the management ports.

Syntax

- **show interfaces mgmtEthernet pluggables**

Default

None

Command Mode

Privileged EXEC

Examples

The following example displays information transceiver in the management port.

```
7830-32CE-8DE-FabricEngine:1#show interfaces mgmtEthernet pluggables

================================================================================================
==========
                            Port Ethernet Pluggables
================================================================================================
==========

Port: mgmt
------------------------------------------------------------------------------------------------
-----------------
Type: GbicSx
DDM Supported : TRUE
Vendor Name  : JDSU                 Partnumber : PLRXPL-VI-S24-A   SKU:
Vendor REV   : 1                    Vendor SN  : JDSUCNCE08DT8NE
Vendor Date  : 14/02/25

Digital Diagnostic Interface Supported

Calibration             : External
RX Power Measurement    : Optical Modulation Amplitude (OMA)
Auxiliary 1 Monitoring  : Not Implemented
Auxiliary 2 Monitoring  : Not Implemented


------------------------------------------------------------------------------------------------
-----------------
              LOW_ALARM LOW_WARN    ACTUAL  HIGH_WARN HIGH_ALARM THRESHOLD
              THRESHOLD THRESHOLD   VALUE   THRESHOLD THRESHOLD  STATUS
------------------------------------------------------------------------------------------------
-----------------
Temp(C)         -40.0     -35.0      18.3671   88.0      93.0     Normal
```

```
Voltage(V)         3.0350    3.1000    3.2971    3.5000    3.5650  Normal
Bias(mA)           1.0       2.0       4.3760    9.0       10.0    Normal
TxPower(dBm)    -11.5000  -10.6000   -5.0       1.0       2.0     Normal
RxPower(dBm)    -20.0     -18.9000  -40.0      -1.1000    0.0     Low Alarm
```

Usage Guidelines

This command applies to the 7830 Series only.

show interfaces mgmtethernet statistics

Display individual statistics for specific management ports to manage network performance.

Syntax

- **show interfaces mgmtEthernet statistics**
- **show interfaces mgmtEthernet statistics verbose**

Default

None

Command Mode

Privileged EXEC

Usage Guidelines

This command only applies to hardware with a dedicated physical management interface.

show interfaces vlan

Show basic and advanced VLAN information.

Syntax

- **show interfaces vlan**
- **show interfaces vlan <1-4059>**

Command Parameters

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot

configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

Privileged EXEC

show interfaces vlan arp

Display Address Resolution Protocol (ARP) information for the VLAN.

Syntax

- **show interfaces vlan arp**
- **show interfaces vlan arp <1-4059>**

Command Parameters

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

Privileged EXEC

show interfaces vlan autolearn-mac

Show bridging autolearn MAC address information for VLANs.

Syntax

- **show interfaces vlan autolearn-mac**

- **show interfaces vlan autolearn-mac**

Default

None

Command Mode

Privileged EXEC

show interfaces vlan dhcp-relay

Show Dynamic Host Configuration Protocol (DHCP) information for the VLAN.

Syntax

- **show interfaces vlan dhcp-relay**
- **show interfaces vlan dhcp-relay <1-4059>**

Command Parameters

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

Privileged EXEC

show interfaces vlan igmp

Show Internet Group Management Protocol (IGMP) information for the VLAN.

Syntax

- **show interfaces vlan igmp [<1-4059>]**
- **show interfaces vlan vrf WORD<0-32>**

- **show interfaces vlan vrfid WORD<0-255>**

Command Parameters

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

WORD<0-255>

Enter vrf ids

WORD<0-32>

Specify the vrf name

Default

None

Command Mode

Privileged EXEC

show interfaces vlan igmp-mrdisc

Show Internet Group Management Protocol (IGMP) multicast route discovery information for the VLAN.

Syntax

- **show interfaces vlan igmp-mrdisc [<1-4059>]**

Command Parameters

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

Privileged EXEC

show interfaces vlan ip

Show the IP configuration for the VLAN.

Syntax

- **show interfaces vlan ip**
- **show interfaces vlan ip <1-4059>**
- **show interfaces vlan ip vrf WORD<1-16>**
- **show interfaces vlan ip vrfids WORD<0-512>**

Command Parameters

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

vrf WORD<1-16>

Specifies a VRF by name.

vrfids WORD<0-512>

Displays ip address information for particular vrfids.

Default

None

Command Mode

Privileged EXEC

show interfaces vlan manual-edit-mac

Display the manually-edited bridging MAC address information for VLANs.

Syntax

- **show interfaces vlan manual-edit-mac**

Default

None

Command Mode

Privileged EXEC

show interfaces vlan nlb-mode

Show the Network Load Balancer (NLB) configuration for the VLAN.

Syntax

- **show interfaces vlan nlb-mode [<1-4059>]**

Command Parameters

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

Privileged EXEC

show interfaces vlan vlan-bysrcmac

Show source MAC-based VLAN information.

Syntax

- **show interfaces vlan vlan-bysrcmac**

Default

None

Command Mode

Privileged EXEC

show interfaces vlan vrfs

Show VRF-association information for the VLAN.

Syntax

- **show interfaces vlan vrfs**
- **show interfaces vlan vrfs <1-4059>**
- **show interfaces vlan vrfs {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **show interfaces vlan vrfs vrf WORD<1-16>**
- **show interfaces vlan vrfs vrfids WORD<0-512>**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

vrf WORD<1-16>

Specifies a VRF instance by name.

vrfids WORD<0-512>

Specifies a range of VRFs by ID number.

Default

None

Command Mode

Privileged EXEC

show ip igmp access

Displays information about the Internet Group Management Protocol (IGMP) multicast access control groups. If you do not specify a VRF name or range of VRF IDs, the results show information for the Global Router. If you do specify a VRF name or range of VRF IDs, the results show information only for the VRFs you specify.

Syntax

- **show ip igmp access**
- **show ip igmp access vrf WORD<1-16>**
- **show ip igmp access vrfids WORD<0-512>**

Command Parameters

vrf WORD<1-16>

Specifies a VRF by name.

vrfids <0-512>

Specifies a VRF by ID.

Default

None

Command Mode

Privileged EXEC

Usage Guidelines

This command is not supported on a node configured as the DvR Leaf within a DvR domain.

Command Output

The **show ip igmp access** command displays the following information:

Output field	Description
INTERFACE	Identifies the interface where multicast access control is configured.
GRP PREFIX	Shows an alphanumeric string that identifies the name of the access policy.
HOSTADDR	Shows the IP address of the host.
HOSTMASK	Shows the subnet mask used to determine the host or hosts covered by this configuration. You can use the host subnet mask to restrict access to a portion of the host network.
ACCESSMODE	Specifies the action of the access policy. The actions are: • deny-tx—deny IP multicast transmitted traffic. • deny-rx—deny IP multicast received traffic. • deny-both—deny both IP multicast transmitted and received traffic. • allow-only-rx—allow IP multicast transmitted traffic. • allow-only-rx—allow IP multicast received traffic. • allow-only-both—allow both IP multicast transmitted and received traffic.

show ip igmp cache

Displays information about the IGMP cache. If you do not specify a VRF name or range of VRF IDs, the results show information for the Global Router. If you do specify a VRF name or range of VRF IDs, the results show information only for the VRFs you specify.

Syntax

- **show ip igmp cache**
- **show ip igmp cache vrf WORD<1-16>**
- **show ip igmp cache vrfids WORD<0-512>**

Command Parameters

vrf WORD<1-16>

Specifies a VRF by name.

vrfids <0-512>

Specifies a VRF by ID.

Default

None

Command Mode

Privileged EXEC

Command Output

The **show ip igmp cache** command displays the following information:

Output field	Description
GRPADDR	Indicates the multicast group address (Class D) that others want to join. Many incoming ports can use the same group address.
INTERFACE	Indicates the physical interface or a logical interface (VLAN), which received group reports from various sources.
LASTREPORTER	Indicates the IP address of the source of the last membership report received for this IP multicast group address on this interface. If the interface does not receive a membership report, this object uses the value 0.0.0.0.
EXPIRATION	Indicates the minimum amount of time that remains before this entry ages out.
V1HOSTIMER	Indicates the time that remains until the local router assumes that no IGMPv1 members exist on the IP subnet attached to this interface.
TYPE	Indicates whether the entry is learned dynamically or is added statically.
STATICPORTS	Indicates the list of statically-defined ports.
L2ISID	Indicates the I-SID associated with the Layer 2 interface.

show ip igmp group

Displays information about a statically configured or dynamically learned IGMP group. If you do not specify a VRF name or range of VRF IDs, the results show information for the Global Router. If you do specify a VRF name or range of VRF IDs, the results show information only for the VRFs you specify.

Syntax

- **show ip igmp group**
- **show ip igmp group group {A.B.C.D}**
- **show ip igmp group member-subnet {A.B.C.D/X}**
- **show ip igmp group vrf WORD<1-16>**
- **show ip igmp group vrfids WORD<0-512>**

Command Parameters

count

Specifies the number of entries.

group {A.B.C.D}

Specifies the group address.

member-subnet default |{A.B.C.D/X}

Specifies the IP address and network mask.

vrf WORD<1-16>

Specifies a VRF by name.

vrfids <0-512>

Specifies a VRF by ID.

Default

None

Command Mode

Privileged EXEC

Usage Guidelines

The CLI command **show ip igmp group** displays both static and dynamically learned IGMP groups, and the CLI command **show ip igmp static** command displays only the statically configured IGMP groups. In contrast, the EDM display command under **IP > IGMP > Groups** displays the dynamically learned groups, and the EDM command under **IP > IGMP > Static** displays the statically configured IGMP groups.

Command Output

The **show ip igmp group** command displays the following information:

Output field	Description
GRPADDR	Indicates the multicast group address (Class D) that others want to join. Many incoming ports can use the same group address.
INPORT	Indicates the physical interface or a logical interface (VLAN), which received group reports from various sources.
MEMBER	Indicates the IP address of a source that sent a group report to join this group.
EXPIRATION	Indicates the time left before the group report expires on this port. The port updates this variable after it receives a group report.
TYPE	Indicates whether the entry is learned dynamically or is added statically.
L2ISID	Indicates the I-SID associated with the Layer 2 interface.

Examples

The following example displays information about the IGMP group.

```
Switch:1#show ip igmp group

================================================================================
                           Igmp Group - GlobalRouter
================================================================================
GRPADDR         INPORT          MEMBER          EXPIRATION TYPE       L2ISID
--------------------------------------------------------------------------------
224.5.2.1       V701-1/4        62.0.1.1        214        Dynamic    40400
224.5.2.2       V702-1/4        62.0.2.1        221        Dynamic    40400
224.5.2.3       V703-1/4        62.0.3.1        217        Dynamic    40400
224.5.2.4       V704-1/4        62.0.4.1        223        Dynamic    40400

4 out of 4 group Receivers displayed

Total number of unique groups 2
```

The following example displays information about the IGMP group for a specific VRF.

```
Switch:1# show ip igmp group vrf green

================================================================================
                           IGMP Group - GlobalRouter
================================================================================
GRPADDR         INPORT          MEMBER          EXPIRATION TYPE
--------------------------------------------------------------------------------
233.252.0.1    V501-1/16       192.2.0.1      204        Dynamic
233.252.0.2    V501-1/16       192.2.0.1      206        Dynamic
233.252.0.3    V501-1/16       192.2.0.1      206        Dynamic
233.252.0.4    V501-1/16       192.2.0.1      207        Dynamic
233.252.0.5    V501-1/16       192.2.0.1      204        Dynamic
233.252.0.6    V501-1/16       192.2.0.1      209        Dynamic
233.252.0.7    V501-1/16       192.2.0.1      206        Dynamic
233.252.0.8    V501-1/16       192.2.0.1      206        Dynamic
233.252.0.9    V501-1/16       192.2.0.1      211        Dynamic
233.252.0.10   V501-1/16       192.2.0.1      207        Dynamic

10 out of 10 group Receivers displayed

Total number of unique groups 10
```

show ip igmp group count

Displays the number of entries in the IGMP group. If you do not specify a VRF name or range of VRF IDs, the results show information for the Global Router. If you do specify a VRF name or range of VRF IDs, the results show information only for the VRFs you specify.

Syntax

- **show ip igmp group count member-subnet {A.B.C.D/X}**
- **show ip igmp group count vrf WORD<1-16>**
- **show ip igmp group count vrfids WORD<0-512>**

Command Parameters

group {A.B.C.D}

Specifies the group address.

member-subnet default |{A.B.C.D/X}

Specifies the IP address and network mask.

vrf WORD<1-16>

Specifies a VRF by name.

vrfids <0-512>

Specifies a VRF by ID.

Default

None

Command Mode

Privileged EXEC

show ip igmp group count group {A.B.C.D}

Displays the number of entries in the specified IGMP group. If you do not specify a VRF name or range of VRF IDs, the results show information for the Global Router. If you do specify a VRF name or range of VRF IDs, the results show information only for the VRFs you specify.

Syntax

- **show ip igmp group count group {A.B.C.D} [detail] [vrf WORD<1-16>] [vrfids WORD<0-512>]**
- **show ip igmp group count group {A.B.C.D} detail [port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}] [vlan <1-4059>] [vrf WORD<1-16>] [vrfids WORD<0-512>]**

Command Parameters

{A.B.C.D}

Specifies the group address.

detail

Displays Internet Group Management Protocol version 3 (IGMPv3)-specific data.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

vrf WORD<1-16>

Specifies a VRF by name.

vrfids <0-512>

Specifies a VRF by ID.

Default

None

Command Mode

Privileged EXEC

show ip igmp group count group {A.B.C.D} tracked-members

Displays the number of tracked-members in the specified IGMP group.

Syntax

- **show ip igmp group count group {A.B.C.D} tracked-members**

Command Parameters

member-subnet {A.B.C.D/X}

Specifies the IP address and mask of the IGMP member.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

source-subnet {A.B.C.D/X}

Specifies the source IP address and the subnet mask.

vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

vrf WORD<1-16>

Specifies a VRF by name.

vrfids WORD <0-512>

Specifies the ID of the VRF and is an integer in the range of 0 to 512.

Default

None

Command Mode

Privileged EXEC

show ip igmp group count group {A.B.C.D} tracked-members member-subnet

Displays the number of tracked-members in the specified IGMP group for specific member IP address and subnet mask.

Syntax

- **show ip igmp group count group {A.B.C.D} tracked-members member-subnet {A.B.C.D/X} [port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}] [source-subnet {A.B.C.D/X}] [vlan <1-4059>] [vrf WORD<1-16>] [vrfids WORD<0-512>]**

Command Parameters

{A.B.C.D/X}

Specifies the IP address with mask in A.B.C.D/X or A.B.C.D/X.X.X.X format.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Displays the number of tracked-members in the specified IGMP group for the specified port list.

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

source-subnet {A.B.C.D/X}

Displays the number of tracked-members in the specified IGMP group for a specific source IP address and subnet mask.

vlan *<1-4059>*

Displays the number of tracked-members in the specified IGMP group for a specific VLAN ID.

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

vrf WORD<1-16>

Displays the number of tracked-members in the specified IGMP group for a specific VRF.

vrfids WORD<0-512>

Displays the number of tracked-members in the specified IGMP group for a specific VRF ID.

Default

None

Command Mode

Privileged EXEC

show ip igmp group count group {A.B.C.D} tracked-members port

Displays the number of tracked-members in the specified IGMP group for specific port list.

Syntax

- **show ip igmp group count group {A.B.C.D} tracked-members port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} [member-subnet {A.B.C.D/X}] [source-subnet {A.B.C.D/X}] [vlan <1-4059>] [vrf WORD<1-16>] [vrfids <0-512>]**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

member-subnet {A.B.C.D/X}

Displays the number of tracked-members in the specified IGMP group for specific member IP address and subnet mask.

source-subnet {A.B.C.D/X}

Displays the number of tracked-members in the specified IGMP group for a specific source IP address and subnet mask.

vlan *<1-4059>*

Displays the number of tracked-members in the specified IGMP group for a specific VLAN ID.

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

vrf WORD<1-16>

Displays the number of tracked-members in the specified IGMP group for a specific VRF.

vrfids WORD<0-512>

Displays the number of tracked-members in the specified IGMP group for a specific VRF ID.

Default

None

Command Mode

Privileged EXEC

show ip igmp group count group {A.B.C.D} tracked-members source-subnet

Displays the number of tracked-members in the specified IGMP group for a specific source IP address and subnet mask.

Syntax

- **show ip igmp group count group {A.B.C.D} tracked-members source-subnet {A.B.C.D/X} [member-subnet {A.B.C.D/X}] [port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}] [vlan <1-4059>] [vrf WORD<1-16>] [vrfids WORD<0-512>]**

Command Parameters

{A.B.C.D/X}

Specifies the IP address with mask in A.B.C.D/X or A.B.C.D/X.X.X.X format.

member-subnet {A.B.C.D/X}

Displays the number of tracked-members in the specified IGMP group for specific member IP address and subnet mask.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Displays the number of tracked-members in the specified IGMP group for the specified port list.

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

vlan *<1-4059>*

Displays the number of tracked-members in the specified IGMP group for a specific VLAN ID.

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

vrf WORD<1-16>

Displays the number of tracked-members in the specified IGMP group for a specific VRF.

vrfids WORD<0-512>

Displays the number of tracked-members in the specified IGMP group for a specific VRF ID.

Default

None

Command Mode

Privileged EXEC

show ip igmp group count group {A.B.C.D} tracked-members vlan

Displays the number of tracked-members in the specified IGMP group for a specific VLAN ID.

Syntax

- **show ip igmp group count group {A.B.C.D} tracked-members vlan <1-4059> [member-subnet {A.B.C.D/X}] [port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}] [source-subnet {A.B.C.D/X}]**

Command Parameters

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

member-subnet {A.B.C.D/X}

Displays the number of tracked-members in the specified IGMP group for specific member IP address and subnet mask.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all] [all]}*

Displays the number of tracked-members in the specified IGMP group for the specified port list.

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

source-subnet {A.B.C.D/X}

Displays the number of tracked-members in the specified IGMP group for a specific source IP address and subnet mask.

Default

None

Command Mode

Privileged EXEC

show ip igmp group count group {A.B.C.D} tracked-members vrf

Displays the number of tracked-members in the specified IGMP group for a specific VRF.

Syntax

- **show ip igmp group count group {A.B.C.D} tracked-members vrf WORD<1-16> [vrfids WORD<0-512>]**

Command Parameters

vrf WORD<1-16>

Displays the number of tracked-members in the specified IGMP group for a specific VRF name.

vrfids WORD<0-512>

Displays the number of tracked-members in the specified IGMP group for a specific VRF ID.

WORD<1-16>

Specifies the VRF name.

Default

None

Command Mode

Privileged EXEC

show ip igmp group count group {A.B.C.D} tracked-members vrfids

Displays the number of tracked-members in the specified IGMP group for a specific VRF ID.

Syntax

- **show ip igmp group count group {A.B.C.D} tracked-members vrfids WORD<0-512>**

Command Parameters

WORD<0-512>

Specifies the VRF ID.

Default

None

Command Mode

Privileged EXEC

show ip igmp group count member-subnet

Displays the number of members in the specified IGMP group subnet.

Syntax

- **show ip igmp group count member-subnet {A.B.C.D/X}**

Command Parameters

member-subnet {A.B.C.D/X}

Specifies the IP address and mask of the IGMP member.

Default

None

Command Mode

Privileged EXEC

show ip igmp group count member-subnet {A.B.C.D/X} group

Displays the number of members in the specified IGMP group subnet.

Syntax

- **show ip igmp group count member-subnet {A.B.C.D/X} group {A.B.C.D}**

Command Parameters

{A.B.C.D}

Specifies the group address.

member-subnet {A.B.C.D/X}

Specifies the IP address and mask of the IGMP member.

Default

None

Command Mode

Privileged EXEC

show ip igmp group count member-subnet {A.B.C.D/X} group {A.B.C.D} detail

Displays the number of members in the specified IGMP group subnet. If you do not specify a VRF name or range of VRF IDs, the results show information for the Global Router. If you do specify a VRF name or range of VRF IDs, the results show information only for the VRFs you specify.

Syntax

- **show ip igmp group count member-subnet {A.B.C.D/X} group {A.B.C.D} detail [port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}] [vlan <1-4059>] [vrf WORD<1-16>] [vrfids WORD<0-512>]**

Command Parameters

{A.B.C.D}

Specifies the group address.

member-subnet {A.B.C.D/X}

Specifies the IP address and mask of the IGMP member.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

vrf WORD<1-16>

Specifies a VRF by name.

vrfids WORD <0-512>

Specifies the ID of the VRF and is an integer in the range of 0 to 512.

Default

None

Command Mode

Privileged EXEC

show ip igmp group count member-subnet {A.B.C.D/X} group {A.B.C.D} tracked-members

Displays the number of tracked-members in the specified IGMP group subnet. If you do not specify a VRF name or range of VRF IDs, the results show information for the Global Router. If you do specify a VRF name or range of VRF IDs, the results show information only for the VRFs you specify.

Syntax

- **show ip igmp group count member-subnet {A.B.C.D/X} group {A.B.C.D} tracked-members [member-subnet {A.B.C.D/X}] [port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}] [source-subnet {A.B.C.D/X}] [vlan <1-4059>] [vrf WORD<1-16>] [vrfids WORD<0-512>]**

Command Parameters

{A.B.C.D}

Specifies the group address.

member-subnet {A.B.C.D/X}

Specifies the IP address and mask of the IGMP member.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

source-subnet {A.B.C.D/X}

Specifies the source IP address and the subnet mask.

vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

vrf WORD<1-16>

Specifies a VRF by name.

vrfids WORD <0-512>

Specifies the ID of the VRF.

Default

None

Command Mode

Privileged EXEC

show ip igmp group count member-subnet {A.B.C.D/X} group {A.B.C.D} tracked-members port

Displays the number of tracked-members in the specified IGMP group subnet for a specified port. If you do not specify a VRF name or range of VRF IDs, the results show information for the Global Router. If you do specify a VRF name or range of VRF IDs, the results show information only for the VRFs you specify.

Syntax

- **show ip igmp group count member-subnet {A.B.C.D/X} group {A.B.C.D} tracked-members port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} [member-subnet {A.B.C.D/X}] [source-subnet {A.B.C.D/X}] [vlan <1-4059>] [vrf WORD<1-16>] [vrfids WORD<0-512>]**

Command Parameters

{A.B.C.D}

Specifies the group address.

member-subnet {A.B.C.D/X}

Specifies the IP address and mask of the IGMP member.

port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

source-subnet {A.B.C.D/X}

Specifies the source IP address and the subnet mask.

vlan <1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

vrf WORD<1-16>

Specifies a VRF by name.

vrfids WORD <0-512>

Specifies the ID of the VRF.

Default

None

Command Mode

Privileged EXEC

show ip igmp group count member-subnet {A.B.C.D/X} group {A.B.C.D} tracked-members source-subnet

Displays the number of tracked-members in the specified IGMP group subnet for a specified source IP address and subnet mask. If you do not specify a VRF name or range of VRF IDs, the results show information for the Global Router. If you do specify a VRF name or range of VRF IDs, the results show information only for the VRFs you specify.

Syntax

- **show ip igmp group count member-subnet {A.B.C.D/X} group {A.B.C.D} tracked-members source-subnet {A.B.C.D/X} [member-subnet {A.B.C.D/X}] [port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}] [vlan <1-4059>] [vrf WORD<1-16>] [vrfids WORD<0-512>]**

Command Parameters

{A.B.C.D}

Specifies the group address.

member-subnet {A.B.C.D/X}

Specifies the IP address and mask of the IGMP member.

port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

source-subnet {A.B.C.D/X}

Specifies the source IP address and the subnet mask.

vlan <1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

vrf WORD<1-16>

Specifies a VRF by name.

vrfids WORD <0-512>

Specifies the ID of the VRF and is an integer in the range of 0 to 512.

Default

None

Command Mode

Privileged EXEC

show ip igmp group count member-subnet {A.B.C.D/X} group {A.B.C.D} tracked-members source-subnet {A.B.C.D/X} port

Displays the number of tracked-members in the specified IGMP group subnet for a specified source IP address and subnet mask, and port. If you do not specify a VRF name or range of VRF IDs, the results show information for the Global Router. If you do specify a VRF name or range of VRF IDs, the results show information only for the VRFs you specify.

Syntax

- **show ip igmp group count member-subnet {A.B.C.D/X} group {A.B.C.D} tracked-members source-subnet {A.B.C.D/X} port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} [member-subnet {A.B.C.D/X}] [vlan <1-4059>] [vrf WORD<1-16>] [vrfids WORD<0-512>]**

Command Parameters

{A.B.C.D}

Specifies the group address.

member-subnet {A.B.C.D/X}

Specifies the IP address and mask of the IGMP member.

port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

source-subnet {A.B.C.D/X}

Specifies the source IP address and the subnet mask.

vlan <1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

vrf WORD<1-16>

Specifies a VRF by name.

vrfids WORD <0-512>

Specifies the ID of the VRF and is an integer in the range of 0 to 512.

Default

None

Command Mode

Privileged EXEC

show ip igmp group count member-subnet {A.B.C.D/X} group {A.B.C.D} tracked-members source-subnet {A.B.C.D/X} vlan

Displays the number of tracked-members in the specified IGMP group subnet for a specified source IP address and subnet mask, and VLAN ID.

Syntax

- **show ip igmp group count member-subnet {A.B.C.D/X} group {A.B.C.D} tracked-members source-subnet {A.B.C.D/X} vlan <1-4059> [member-subnet {A.B.C.D/X}] [port {slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]}]**

Command Parameters

{A.B.C.D}

Specifies the group address.

member-subnet {A.B.C.D/X}

Specifies the IP address and mask of the IGMP member.

port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

source-subnet {A.B.C.D/X}

Specifies the source IP address and the subnet mask.

vlan <1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

Privileged EXEC

show ip igmp group count member-subnet {A.B.C.D/X} group {A.B.C.D} tracked-members source-subnet {A.B.C.D/X} vrf

Displays the number of tracked-members in the specified IGMP group subnet for a specified source IP address and subnet mask, and VRF name.

Syntax

- **show ip igmp group count member-subnet {A.B.C.D/X} group {A.B.C.D} tracked-members source-subnet {A.B.C.D/X} vrf WORD<1-16>**
- **show ip igmp group count member-subnet {A.B.C.D/X} group {A.B.C.D} tracked-members source-subnet {A.B.C.D/X} vrf WORD<1-16> vrfids WORD<0-512>**

Command Parameters

{A.B.C.D}

Specifies the group address.

member-subnet {A.B.C.D/X}

Specifies the IP address and mask of the IGMP member.

source-subnet {A.B.C.D/X}

Specifies the source IP address and the subnet mask.

vrf WORD<1-16>

Specifies a VRF by name.

vrfids WORD <0-512>

Specifies the ID of the VRF and is an integer in the range of 0 to 512.

Default

None

Command Mode

Privileged EXEC

show ip igmp group count member-subnet {A.B.C.D/X} group {A.B.C.D} tracked-members source-subnet {A.B.C.D/X} vrfids

Displays the number of tracked-members in the specified IGMP group subnet for a specified source IP address and subnet mask, and VRF ID.

Syntax

- **show ip igmp group count member-subnet {A.B.C.D/X} group {A.B.C.D} tracked-members source-subnet {A.B.C.D/X} vrfids WORD<0-512>**

Command Parameters

{A.B.C.D}

Specifies the group address.

member-subnet {A.B.C.D/X}

Specifies the IP address and mask of the IGMP member.

source-subnet {A.B.C.D/X}

Specifies the source IP address and the subnet mask.

vrfids WORD <0-512>

Specifies the ID of the VRF and is an integer in the range of 0 to 512.

Default

None

Command Mode

Privileged EXEC

show ip igmp group count member-subnet {A.B.C.D/X} group {A.B.C.D} tracked-members vlan

Displays the number of tracked-members in the specified IGMP group subnet for a specified VLAN ID.

Syntax

- **show ip igmp group count member-subnet {A.B.C.D/X} group {A.B.C.D} tracked-members vlan <1-4059> [member-subnet {A.B.C.D/X}] [port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}] [source-subnet {A.B.C.D/X}]**

Command Parameters

{A.B.C.D}

Specifies the group address.

member-subnet {A.B.C.D/X}

Specifies the IP address and mask of the IGMP member.

port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)

- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

source-subnet {A.B.C.D/X}

Specifies the source IP address and the subnet mask.

vlan <1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

Privileged EXEC

show ip igmp group count member-subnet {A.B.C.D/X} group {A.B.C.D} tracked-members vrf

Displays the number of tracked-members in the specified IGMP group subnet for a specified VRF name.

Syntax

- **show ip igmp group count member-subnet {A.B.C.D/X} group {A.B.C.D} tracked-members vrf WORD<1-16>**
- **show ip igmp group count member-subnet {A.B.C.D/X} group {A.B.C.D} tracked-members vrf WORD<1-16> vrfids WORD<0-512>**

Command Parameters

{A.B.C.D}

Specifies the group address.

member-subnet {A.B.C.D/X}

Specifies the IP address and mask of the IGMP member.

vrf WORD<1-16>

Specifies a VRF by name.

vrfids WORD <0-512>

Specifies the ID of the VRF and is an integer in the range of 0 to 512.

Default

None

Command Mode

Privileged EXEC

show ip igmp group count member-subnet {A.B.C.D/X} group {A.B.C.D} tracked-members vrfids

Displays the number of tracked-members in the specified IGMP group subnet for a specified VRF ID.

Syntax

- **show ip igmp group count member-subnet {A.B.C.D/X} group {A.B.C.D} tracked-members vrfids WORD<0-512>**

Command Parameters

{A.B.C.D}

Specifies the group address.

member-subnet {A.B.C.D/X}

Specifies the IP address and mask of the IGMP member.

vrfids WORD <0-512>

Specifies the ID of the VRF and is an integer in the range of 0 to 512.

Default

None

Command Mode

Privileged EXEC

show ip igmp group count member-subnet {A.B.C.D/X} group {A.B.C.D} vrf

Displays the number of members in the specified IGMP group subnet for a specified VRF name.

Syntax

- **show ip igmp group count member-subnet {A.B.C.D/X} group {A.B.C.D} vrf WORD<1-16>**
- **show ip igmp group count member-subnet {A.B.C.D/X} group {A.B.C.D} vrf WORD<1-16> vrfids WORD<0-512>**

Command Parameters

{A.B.C.D}

Specifies the group address.

member-subnet {A.B.C.D/X}

Specifies the IP address and mask of the IGMP member.

vrf WORD<1-16>

Specifies a VRF by name.

vrfids WORD <0-512>

Specifies the ID of the VRF and is an integer in the range of 0 to 512.

Default

None

Command Mode

Privileged EXEC

show ip igmp group count member-subnet {A.B.C.D/X} group {A.B.C.D} vrfids

Displays the number of members in the specified IGMP group subnet for a specified VRF ID

Syntax

- **show ip igmp group count member-subnet {A.B.C.D/X} group {A.B.C.D} vrfids WORD<0-512>**

Command Parameters

{A.B.C.D}

Specifies the group address.

member-subnet {A.B.C.D/X}

Specifies the IP address and mask of the IGMP member.

vrfids WORD <0-512>

Specifies the ID of the VRF and is an integer in the range of 0 to 512.

Default

None

Command Mode

Privileged EXEC

show ip igmp group count member-subnet {A.B.C.D/X} vrf

Displays the number of members in the specified IGMP subnet for a specified VRF name.

Syntax

- **show ip igmp group count member-subnet {A.B.C.D/X} vrf WORD<1-16>**
- **show ip igmp group count member-subnet {A.B.C.D/X} vrf WORD<1-16> vrfids WORD<0-512>**

Command Parameters

member-subnet {A.B.C.D/X}

Specifies the IP address and mask of the IGMP member.

vrf WORD<1-16>

Specifies a VRF by name.

vrfids WORD <0-512>

Specifies the ID of the VRF and is an integer in the range of 0 to 512.

Default

None

Command Mode

Privileged EXEC

show ip igmp group count member-subnet {A.B.C.D/X} vrfids

Displays the number of members in the specified IGMP subnet for a specified VRF ID.

Syntax

- **show ip igmp group count member-subnet {A.B.C.D/X} vrfids WORD<0-512>**

Command Parameters

member-subnet {A.B.C.D/X}

Specifies the IP address and mask of the IGMP member.

vrfids WORD <0-512>

Specifies the ID of the VRF and is an integer in the range of 0 to 512.

Default

None

Command Mode

Privileged EXEC

show ip igmp group group <A.B.C.D>

Displays information for a specific group address. If you do not specify a VRF name or range of VRF IDs, the results show information for the Global Router. If you do specify a VRF name or range of VRF IDs, the results show information only for the VRFs you specify.

Syntax

- **show ip igmp group group {A.B.C.D} [detail] [vlan <1-4059>] [vrf WORD <0-16>] [vrfids WORD <0-512>]**
- **show ip igmp group group {A.B.C.D} detail port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} [vlan <1-4059>] [vrf WORD <0-16>] [vrfids WORD <0-512>]**

Command Parameters

detail

Displays Internet Group Management Protocol version 3 (IGMPv3)-specific data.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

vrf WORD<1-16>

Specifies a VRF by name.

vrfids <0-512>

Specifies a VRF by ID.

Default

None

Command Mode

Privileged EXEC

show ip igmp group group <A.B.C.D> tracked-members

Displays all the tracked members for a specific group. If you do not specify a VRF name or range of VRF IDs, the results show information for the Global Router. If you do specify a VRF name or range of VRF IDs, the results show information only for the VRFs you specify.

Syntax

- **show ip igmp group group {A.B.C.D} tracked-members [member-subnet {A.B.C.D/X}] [port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}] [source-subnet {A.B.C.D/X}] [vlan <1-4059>] [vrf WORD<1-16>] [vrfids WORD <0-512>]**

Command Parameters

member-subnet {A.B.C.D/X}

Specifies the IP address and mask of the IGMP member.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)

- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

source-subnet {A.B.C.D/X}

Specifies the source IP address and the subnet mask.

vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

vrf WORD<1-16>

Specifies a VRF by name.

vrfids <0-512>

Specifies a VRF by ID.

Default

None

Command Mode

Privileged EXEC

show ip igmp group member-subnet

Displays information for a specific IP address and mask of the IGMP member. If you do not specify a VRF name or range of VRF IDs, the results show information for the Global Router. If you do specify a VRF name or range of VRF IDs, the results show information only for the VRFs you specify.

Syntax

- **show ip igmp group member-subnet {A.B.C.D/X}**
- **show ip igmp group member-subnet {A.B.C.D/X} vrf WORD<1-16>**
- **show ip igmp group member-subnet {A.B.C.D/X} vrfids WORD<0-512>**
- **show ip igmp group member-subnet default**

Command Parameters

{A.B.C.D/X}

Specifies the IP address and mask of the IGMP member.

default

Shows information for the default IP address.

vrf WORD<1-16>

Specifies a VRF by name.

vrfids <0-512>

Specifies a VRF by ID.

Default

None

Command Mode

Privileged EXEC

show ip igmp interface

Displays information about the interfaces where Internet Group Management Protocol (IGMP) is enabled. If you do not specify a VRF name or range of VRF IDs, the results show information for the Global Router. If you do specify a VRF name or range of VRF IDs, the results show information only for the VRFs you specify.

Syntax

- **show ip igmp interface**
- **show ip igmp interface gigabitethernet [<1-4059>] [{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]**
- **show ip igmp interface vlan [<1-4059>] [vrf WORD<1-16>] [vrfids WORD<0-512>]**
- **show ip igmp interface vrf WORD<1-16> [vrfids WORD<0-512>]**
- **show ip igmp interface vrfids WORD<0-512>**

Command Parameters

gigabitethernet *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

interface

Shows Internet Group Management Protocol (IGMP) interfaces.

vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

vrf WORD<1-16>

Specifies a VRF by name.

vrfids <0-512>

Specifies a VRF by ID.

Default

None

Command Mode

Privileged EXEC

Command Output

The following table shows the field descriptions for the **show ip igmp interface** if you do not use the interface parameters.

Output Field	Description
IF	Specifies the interface where IGMP is configured.
QUERY INTVL	Specifies the frequency at which IGMP host query packets transmit on this interface.
STATUS	Specifies the activation of a row, which activates IGMP on the interface. The destruction of a row disables IGMP on the interface.
VERS.	Specifies the version of IGMP that runs on this interface. This object configures a router capable of running either version. For IGMP to function correctly, you must configure all routers on a LAN to run the same version of IGMP.
OPER VERS	Specifies the operational version of IGMP.
QUERIER	Specifies the address of the IGMP querier on the IP subnet to which this interface attaches.

Output Field	Description
QUERY MAXRSPT	Specifies the maximum query response time (in tenths of a second) advertised in IGMPv2 queries on this interface.
WRONG QUERY	Specifies the number of queries received where the IGMP version does not match the interface version. You must configure all routers on a LAN to run the same version of IGMP. If queries are received with the wrong version, a configuration error occurs.
JOINS	Specifies the number of times this interface added a group membership.
ROBUST	Specifies the robustness variable, which you can configure for the expected packet loss on a subnet. If you expect packet loss on a subnet, increase the robustness variable.
LASTMEM QUERY	Specifies the maximum response time (in tenths of a second) inserted into group-specific queries sent in response to leave group messages, and is also the amount of time between group-specific query messages. Use this value to modify the leave latency of the network. A reduced value results in reduced time to detect the loss of the last member of a group. This variable does not apply to IGMPv1.
MODE	Specifies the protocol configured on the VLAN added. • snoop—Indicates IGMP snooping is enabled on a VLAN. • snoop-spb—Indicates IGMP is enabled on a VLAN with an associated I-SID (IP multicast over Fabric Connect for a Layer 2 VSN). • pim—Indicates PIM is enabled. • routed-spb—Indicates IP Multicast over Fabric Connect is enabled on the Layer 3 VSN or for IP Shortcuts. • pim-gw-spb—Indicates the SPB-PIM Gateway is enabled on the interface.
L2ISID	Specifies the I-SID associated with the Layer 2 interface.
SCOPE ISID	Displays the scope I-SID of the SPB multicast sender. A value of 0xFFFFFFFF is returned when the sender type does not support SPB scope I-SID.

The following table shows the field descriptions for the **`show ip igmp interface`** if you use the interface parameters.

Output Field	Description
VLAN ID or PORT NUM	Specifies the VLAN or port where IGMP is configured.
QUERY INTVL	Specifies the frequency at which IGMP host query packets transmit on this interface.
QUERY MAX RESP	Specifies the maximum query response time (in tenths of a second) advertised in IGMPv2 queries on this interface.
ROBUST	Specifies the robustness variable, which you can configure for the expected packet loss on a subnet. If you expect packet loss on a subnet, increase the robustness variable.

Output Field	Description
VERSION	Specifies the version of IGMP that runs on this interface. This object configures a router capable of running either version. For IGMP to function correctly, you must configure all routers on a LAN to run the same version of IGMP.
VERSION ORIGIN	Specifies the origin of the IGMP version. The supported values are: • config—configured by the user. • radius—configured by the Remote Authentication Dial-In User Service (RADIUS) attribute.
LAST MEMB QUERY	Specifies the maximum response time (in tenths of a second) inserted into group-specific queries sent in response to leave group messages, and is also the amount of time between group-specific query messages. Use this value to modify the leave latency of the network. A reduced value results in reduced time to detect the loss of the last member of a group. This variable does not apply to IGMPv1.
PROXY SNOOP ENABLE	Specifies if proxy snoop is enabled on the interface.
SNOOP ENABLE	Specifies if snoop is enabled on the interface.
SNOOP ORIGIN	Specifies the origin of the IGMP Snooping configuration on the port. The supported values are: • config—Configured by the user. • radius—Configured by the Remote Authentication Dial-In User Service (RADIUS) attribute.
SSM SNOOP ENABLE	Specifies if SSM snoop is enabled on the interface.
UPnP FILTER ENABLE	Specifies if Universal Plug and Play (uPnP) Filtering is enabled to filter multicast packets destined for a specific range. The default is disabled.
FAST LEAVE ENABLE	Specifies if fast leave mode is enabled on the interface.
FAST LEAVE ORIGIN	Specifies the origin of the IGMP Fast Leave configuration on the port. The supported values are: • config—configured by the user. • radius—configured by the Remote Authentication Dial-In User Service (RADIUS) attribute.
FAST LEAVE PORTS (VLAN parameter only)	Specifies the set of ports that are enabled for fast leave
SNOOP QUERIER ENABLE (VLAN parameter only)	Specifies if the IGMP Layer 2 Querier feature is enabled.
SNOOP QUERIER ADDRESS (VLAN parameter only)	Specifies the IP address of the IGMP Layer 2 querier.

Output Field	Description
ORIGIN	Specifies the origin of the IGMP Snooping configuration on the port. The supported values are: • config—configured by the user. • radius—configured by the Remote Authentication Dial-In User Service (RADIUS) attribute. .
DYNAMIC DOWNGRADE VERSION	Specifies if the dynamic downgrade feature is enabled.
COMPATIBILITY MODE ENABLE	Specifies if compatibility mode is enabled.
ORIGIN	Specifies the origin of the Compatibility mode. The supported values are: • config—configured by the user. • radius—configured by the Remote Authentication Dial-In User Service (RADIUS) attribute.
EXPLICIT HOSTS TRACKING ENABLE	Specifies if explicit host tracking is enabled to track all the source and group members.
ORIGIN	Specifies the origin of the explicit host tracking. The supported values are: • config—configured by the user. • radius—configured by the Remote Authentication Dial-In User Service (RADIUS) attribute.
UPnP FILTER ADDRESS	Specifies the multicast destination IP address to filter on an IGMP-enabled interface. The default is 239.255.255.250/32.

Examples

The following examples display information about the interfaces where IGMP is enabled.

```
Switch:1#show ip igmp interface vrf l3vsn-100
================================================================================================================
                                      Igmp Interface - VRF l3vsn-100
================================================================================================================
       QUERY              OPER            QUERY   WRONG              LASTMEM                     SCOPE
IF     INTVL STATUS VERS. VERS QUERIER    MAXRSPT QUERY JOINS ROBUST QUERY   MODE       L2ISID   ISID
----------------------------------------------------------------------------------------------------------------
V10    125   inact  2     2    0.0.0.0    100     0     0     2      10      routed-spb 0        100

Switch:1(config)#show ip igmp interface vlan 20
================================================================================================
                                 Vlan Ip Igmp
================================================================================================
VLAN QUERY QUERY ROBUST VERSION VERSION LAST  PROXY  SNOOP  SNOOP           SSM    UPnP   FAST   FAST    FAST
ID   INTVL MAX                  ORIGIN  MEMB  SNOOP  ENABLE ORIGIN          SNOOP  FILTER LEAVE  LEAVE   LEAVE
           RESP                        QUERY ENABLE                        ENABLE ENABLE ENABLE ORIGIN  PORTS
------------------------------------------------------------------------------------------------------------
20   125   100   2      2       CONFIG  10    true   true   RADIUS          false  true   false  RADIUS

VLAN SNOOP           SNOOP             DYNAMIC   COMPATIBILITY    EXPLICIT HOSTS   UPnP
ID   QUERIER         QUERIER           DOWNGRADE MODE             TRACKING         FILTER
     ENABLE ORIGIN   ADDRESS   ORIGIN  VERSION   ENABLE  ORIGIN   ENABLE  ORIGIN   ADDRESS
------------------------------------------------------------------------------------------------------------
20   true   RADIUS   192.0.2.1 RADIUS  enable    disable RADIUS   disable RADIUS   198.51.100.0/24
```

show ip igmp mrdisc

Displays information about the Internet Group Management Protocol (IGMP) multicast discovery routes. If you do not specify a VRF name or range of VRF IDs, the results show information for the Global Router. If you do specify a VRF name or range of VRF IDs, the results show information only for the VRFs you specify.

Syntax

- **show ip igmp mrdisc**
- **show ip igmp mrdisc vrf WORD<1-16>**
- **show ip igmp mrdisc vrfids WORD<0-512>**

Command Parameters

vrf WORD<1-16>

Specifies a VRF by name.

vrfids <0-512>

Specifies a VRF by ID.

Default

None

Command Mode

Privileged EXEC

Usage Guidelines

This command is not supported on a node configured as the DvR Leaf within a DvR domain.

Command Output

The **show ip igmp mrdisc** command displays the following information:

Output field	Description
VLAN ID	Indicates the VLAN ID.
MRDISC	Indicates the status of multicast router discovery.
MAX ADV INTERVAL	Indicates the maximum number (in seconds) between successive advertisements.
MIN ADV INTERVAL	Indicates the minimum number (in seconds) between successive advertisements.

Output field	Description
MAX INIT ADV INTERVAL	Indicates the maximum number (in seconds) between successive initial advertisements.
MAX INIT ADV	Indicates the maximum number of initial multicast advertisements after initialization.
NBR DEAD INTERVAL	Indicates the multicast router discovery dead interval — the number of seconds the multicast route neighbors for the switch must wait before assuming that the multicast router is down.
DISCOVERED RTR PORTS	Indicates the ports discovered.

show ip igmp mrdisc neighbors

Display information about the Internet Group Management Protocol (IGMP) multicast router discovery neighbors. If you do not specify a VRF name or range of VRF IDs, the results show information for the Global Router. If you do specify a VRF name or range of VRF IDs, the results show information only for the VRFs you specify.

Syntax

- **show ip igmp mrdisc neighbors**
- **show ip igmp mrdisc neighbors vrf WORD<1-16>**
- **show ip igmp mrdisc neighbors vrfids WORD<0-512>**

Command Parameters

vrf WORD<1-16>

Specifies a VRF by name.

vrfids <0-512>

Specifies a VRF by ID.

Default

None

Command Mode

Privileged EXEC

Command Output

The **show ip igmp mrdisc neighbors** command displays the following information:

Output field	Description
VLAN ID	Indicates the VLAN ID.
SRC_PORT	Indicates the source port.
IP Addr	Indicates the IP address.
Advert-int	Indicates the advertisement interval in seconds.
QUERY-int	Indicates the query interval in seconds.
Robust-val	Indicates the tuning for the expected packet loss on a subnet. If you expect packet loss on a subnet, increase the robustness variable.

show ip igmp router-alert

Display the status of Internet Group Management Protocol (IGMP) router alert. If you do not specify a VRF name or range of VRF IDs, the results show information for the Global Router. If you do specify a VRF name or range of VRF IDs, the results show information only for the VRFs you specify.

Syntax

- **show ip igmp router-alert**
- **show ip igmp router-alert vrf WORD<1-16>**
- **show ip igmp router-alert vrfids WORD<0-512>**

Command Parameters

vrf WORD<1-16>

Specifies a VRF by name.

vrfids <0-512>

Specifies a VRF by ID.

Default

None

Command Mode

Privileged EXEC

Usage Guidelines

This command is not supported on a node configured as the DvR Leaf within the DvR domain.

Command Output

The **show ip igmp router-alert** command displays the following information:

Output field	Description
IFINDEX	Indicates the interface index number.
ROUTER ALERT ENABLE	Indicates the status of the router alert check.

show ip igmp sender

Displays the information about the Internet Group Management Protocol (IGMP) senders.

Syntax

- **show ip igmp sender**
- **show ip igmp sender count**
- **show ip igmp sender group {A.B.C.D}**
- **show ip igmp sender group {A.B.C.D} vrf WORD<1-16>**
- **show ip igmp sender group {A.B.C.D} vrfids WORD<0-512>**
- **show ip igmp sender member-subnet {A.B.C.D/X}**
- **show ip igmp sender member-subnet {A.B.C.D/X} vrf WORD<1-16>**
- **show ip igmp sender member-subnet {A.B.C.D/X} vrfids WORD<0-512>**
- **show ip igmp sender member-subnet default**
- **show ip igmp sender vrf WORD<1-16>**
- **show ip igmp sender vrfids WORD<0-512>**

Command Parameters

count

Specifies the number of entries.

group {A.B.C.D}

Specifies the group address.

member-subnet default |{A.B.C.D/X}

Specifies the IP address and network mask.

vrf WORD<1-16>

Specifies a VRF by name.

Note
The VRF name is **l3vsn-<l3isid>** if added to a DvR leaf. If dynamically created for **spb-multicast**, the VRF name is **mvpn-<l3isid>**.

vrfids <0-512>
Specifies a VRF by ID.

Default

None

Command Mode

Privileged EXEC

Command Output

The **show ip igmp sender** command displays the following information:

Output field	Description
GRPADDR	Indicates the IP multicast address.
IFINDEX	Indicates the interface index number.
MEMBER	Indicates the IP address of the host.
PORT/MLT	Indicates the IGMP sender ports.
STATE	Indicates if a sender exists because of an IGMP access filter. Options include filtered and nonfiltered.
L2ISID	Indicates the I-SID associated with the Layer 2 interface.
SCOPEISID	Indicates the scope ID.
DATAISID	Indicates the data I-SID.

Examples

The following example displays information about IGMP senders:

```
Switch:1# show ip igmp sender
================================================================================
         IGMP Sender - GlobalRouter
================================================================================
                                PORT/
GRPADDR    IFINDEX     MEMBER     MLT     STATE       L2ISID SCOPEISID  DATAISID
--------------------------------------------------------------------------------
224.1.1.4  Vlan 10  192.2.0.1  1/18/1  NOTFILTERED    0  10010    16000001
224.1.1.4  Vlan 10  192.2.0.1  1/18/1  NOTFILTERED    0  10010    16000004
224.1.1.6  Vlan 10  192.2.0.1  1/18/1  FILTERED       0  10010    16000010
224.1.1.7  Vlan 10  192.2.0.1  1/18/1  FILTERED       0  10010    16000009
```

```
224.1.1.8  Vlan 10  192.2.0.1  1/18/1  NOTFILTERED   0  10010     210

5 out of 5 entries displayed
```

The following example displays information about IGMP senders for a specific VRF:

```
Switch:1# show ip igmp sender vrf vrf1
==========================================================================
         IGMP Sender - VRF vrf1
==========================================================================
                              PORT/
GRPADDR   IFINDEX    MEMBER    MLT    STATE      L2ISID SCOPEISID  DATAISID
--------------------------------------------------------------------------
224.1.1.4  Vlan 10  192.2.0.1  1/18/1  NOTFILTERED   0  10010    16000001
224.1.1.4  Vlan 10  192.2.0.1  1/18/1  NOTFILTERED   0  10010    16000004
224.1.1.6  Vlan 10  192.2.0.1  1/18/1  FILTERED      0  10010    16000010
224.1.1.7  Vlan 10  192.2.0.1  1/18/1  FILTERED      0  10010    16000009
224.1.1.8  Vlan 10  192.2.0.1  1/18/1  NOTFILTERED   0  10010     210

5 out of 5 entries displayed
```

show ip igmp snooping

Display the status of Internet Group Management Protocol (IGMP) snoop.

Syntax

- **show ip igmp snooping**
- **show ip igmp snooping vrf WORD<1-16>**
- **show ip igmp snooping vrfids WORD<0-512>**

Command Parameters

vrf WORD<1-16>

Specifies a VRF by name.

vrfids <0-512>

Specifies a VRF by ID.

Default

None

Command Mode

Privileged EXEC

Usage Guidelines

This command is not supported on a node configured as the DvR Leaf within a DvR domain.

Command Output

The **show ip igmp snooping** command displays the following information:

Output field	Description
IFINDEX	Indicates the interface index number.
SNOOP ENABLE	Indicates the status of IGMP snoop.
PROXY SNOOP ENABLE	Indicates the status of IGMP proxy snoop.
SSM SNOOP ENABLE	Indicates the status of IGMP Source Specific Multicast (SSM) snoop.
STATIC MROUTER PORTS	Indicates the set of ports in this VLAN that provide connectivity to an IP multicast router.
ACTIVE MROUTER PORTS	Indicates the active ports.
MROUTER EXPIRATION TIME	Indicates the multicast querier router aging timeout in seconds.
SNOOP QUERIER ENABLE	Indicates if the IGMP Layer 2 Querier feature is enabled.
CONFIGURED QUERIER ADDRESS	Indicates the IP address of the IGMP Layer 2 querier. **Note:** If the IP IGMP mode on the switch is spb-multicast then it uses the routed SPB querier address instead of the snoop querier address.
DYNAMIC DOWNGRADE VERSION	Indicates if the switch downgrades the version of IGMP to handle older query messages.
COMPATIBILITY MODE	Indicates if IGMPv3 is compatible with IGMPv2

Example

The following example displays the status of IGMP snoop.

```
Switch:1#show ip igmp snooping

================================================================================
                          Igmp Snooping - GlobalRouter
================================================================================
IFINDEX SNOOP   PROXY   SSM     STATIC           ACTIVE           MROUTER
        ENABLE  SNOOP   SNOOP   MROUTER          MROUTER          EXPIRATION
                ENABLE  ENABLE  PORTS            PORTS            TIME
--------------------------------------------------------------------------------
V2      false   false   false                                     0
V3      false   false   false                                     0
V4      true    false   false                                     0
V200    false   false   false                                     0

IFINDEX SNOOP   CONFIGURED      DYNAMIC   COMPATIBILITY
        QUERIER QUERIER         DOWNGRADE MODE
        ENABLE  ADDRESS         VERSION
--------------------------------------------------------------------------------
V2      false   0.0.0.0         enable    disable
V3      false   0.0.0.0         enable    disable
V4      true    192.0.2.1       enable    disable
V200    false   0.0.0.0         enable    disable
```

```
4 out of 4 entries displayed
```

show ip igmp snoop-trace

View multicast group trace information for Internet Group Management Protocol (IGMP) snoop.

Syntax

- **show ip igmp snoop-trace [source <A.B.C.D>] [group <A.B.C.D>]**
- **show ip igmp snoop-trace group {A.B.C.D} vrf WORD<1-16>**
- **show ip igmp snoop-trace group {A.B.C.D} vrfids WORD<0-512>**
- **show ip igmp snoop-trace source {A.B.C.D} vrf WORD<1-16>**
- **show ip igmp snoop-trace source {A.B.C.D} vrfids WORD<0-512>**
- **show ip igmp snoop-trace vrf WORD<1-16>**
- **show ip igmp snoop-trace vrfids WORD<0-512>**

Command Parameters

group <A.B.C.D>

Specifies the multicast group address.

source <A.B.C.D>

Specifies the multicast source address.

vrf WORD<1-16>

Specifies a VRF by name.

vrfids <0-512>

Specifies a VRF by ID.

Default

None

Command Mode

Privileged EXEC

Usage Guidelines

This command is not supported on a node configured as the DvR Leaf within the DvR domain.

Command Output

The following table shows the field descriptions for the **show ip igmp snoop-trace** command.

Parameter	Description
GROUP ADDRESS	Indicates the IP multicast group address for which this entry contains information.
SOURCE ADDRESS	Indicates the source of the multicast traffic.
IN VLAN	Indicates the incoming VLAN ID.
IN PORT	Indicates the incoming port number.
OUT VLAN	Indicates the outgoing VLAN ID.
OUT PORT	Indicates the outgoing port number.
TYPE	Indicates where the stream is learned. ACCESS indicates the stream is learned on UNI ports. NETWORK indicates the stream is learned over the SPBM network.

Example

The following example displays multicast group trace information for IGMP snoop. Multicast group trace tracks the data flow path of the multicast streams.

```
Switch:1# show ip igmp snoop-trace

================================================================================
                          Snoop Trace - GlobalRouter
================================================================================
GROUP              SOURCE             IN     IN         OUT    OUT        TYPE
ADDRESS            ADDRESS            VLAN   PORT       VLAN   PORT
--------------------------------------------------------------------------------
233.252.0.1        192.0.2.6          500    1/1        500    1/5        ACCESS
233.252.0.10       192.0.2.7          500    1/1        500    1/10       ACCESS
```

show ip igmp ssm

Display the Source Specific Multicast (SSM) group range and the status of dynamic learning.

Syntax

- **show ip igmp ssm**
- **show ip igmp ssm vrf WORD<1-16>**
- **show ip igmp ssm vrfids WORD<0-512>**

Command Parameters

vrf WORD<1-16>

Specifies a VRF by name.

vrfids <0-512>

Specifies a VRF by ID.

Default

None

Command Mode

Privileged EXEC

Usage Guidelines

This command is not supported on a node configured as the DvR Leaf within a DvR domain.

Command Output

The **show ip igmp ssm** command displays the following information:

Output field	Description
DYNAMIC LEARNING	Indicates whether dynamic learning is enabled at a global level.
SSM GROUP RANGE	Indicates the IP address range for the SSM group.

Example

The following example displays the SSM group range and the status of dynamic learning.

```
Switch:1#show ip igmp ssm
================================================================================================
                          Igmp Ssm Global - GlobalRouter
================================================================================================
DYNAMIC LEARNING     SSM GROUP RANGE
------------------------------------------------------------------------------------------------
enable               232.0.0.0/255.0.0.0
```

show ip igmp ssm-map

Display the list of Source Specific Multicast (SSM) channels.

Syntax

- **show ip igmp ssm-map**
- **show ip igmp ssm-map vrf WORD<1-16>**
- **show ip igmp ssm-map vrfids WORD<0-512>**

Command Parameters

vrf WORD<1-16>

Specifies a VRF by name.

vrfids <0-512>

Specifies a VRF by ID.

Default

None

Command Mode

Privileged EXEC

Command Output

The **show ip igmp ssm-map** command displays the following information:

Output field	Description
GROUP	Indicates the IP multicast group address that uses the default range of 232/8.
SOURCE	Indicates the IP address of the source that sends traffic to the group source.
MODE	Indicates that the entry is a statically configured entry (static) or a dynamically learned entry from IGMPv3 (dynamic).
ACTIVE	Indicates the activity on the corresponding source and group. If the source is active and traffic is flowing to the switch, this status is active; otherwise, it is nonactive.
STATUS	Indicates the administrative state and whether to use the entry. If the status is enabled (default), the entry is used. If the status is disabled, the entry is not used but is saved for future use.

Example

The following example displays the list of SSM maps.

```
Switch:1#show ip igmp ssm-map
================================================================================
                            Igmp Ssm Channel - GlobalRouter
================================================================================
GROUP           SOURCE          MODE       ACTIVE     STATUS
--------------------------------------------------------------------------------
233.252.0.1       192.0.2.200 dynamic    false      enabled
233.252.0.2       192.0.2.200 dynamic    false      enabled
233.252.0.3       192.0.2.200 dynamic    false      enabled
233.252.0.4       192.0.2.200 dynamic    false      enabled
233.252.0.5       192.0.2.200 dynamic    false      enabled
233.252.0.6       192.0.2.200 dynamic    false      enabled
```

```
233.252.0.7       192.0.2.200 dynamic    false      enabled
233.252.0.8       192.0.2.200 dynamic    false      enabled
233.252.0.9       192.0.2.200 dynamic    false      enabled
233.252.0.10      192.0.2.200 dynamic    false      enabled

10 out of 10 entries displayed
```

show ip igmp static

Display information about the static and blocked ports for the Internet Group Management Protocol (IGMP)-enabled interfaces.

Syntax

- **show ip igmp static**
- **show ip igmp static vrf WORD<1-16>**
- **show ip igmp static vrfids WORD<0-512>**

Command Parameters

vrf WORD<1-16>

Specifies a VRF by name.

vrfids <0-512>

Specifies a VRF by ID.

Default

None

Command Mode

Privileged EXEC

Usage Guidelines

This command is not supported on a node configured as the DvR Leaf within a DvR domain.

Command Output

The **show ip igmp static** command displays the following information:

Output field	Description
GRPADDR	Indicates the IP multicast address. The group address holds the starting range for the address range.
TO-GRPADDR	Indicates the end of the range for the group address.

Output field	Description
INTERFACE	Indicates the interface IP address.
STATICPORTS	Indicates the egressing ports.
BLOCKEDPORTS	Indicates the ports not allowed to join.

show ip igmp stream-limit

Display multicast stream limitation information for the ports on a specific interface.

Syntax

- **show ip igmp stream-limit interface**
- **show ip igmp stream-limit interface vrf WORD<1-16>**
- **show ip igmp stream-limit interface vrfids WORD<0-512>**
- **show ip igmp stream-limit port**
- **show ip igmp stream-limit port vrf WORD<1-16>**
- **show ip igmp stream-limit port vrfids WORD<0-512>**

Command Parameters

interface

Specifies the type of interface to include in the output. The results display all ports using stream limitation on the selected interface type.

port

Specifies the Internet Group Management Protocol (IGMP) stream limitation port details.

vrf WORD<1-16>

Specifies a VRF by name.

vrfids <0-512>

Specifies a VRF by ID.

Default

None

Command Mode

Privileged EXEC

Command Output

The **show ip igmp stream-limit** command displays the following information:

Field	Description
INTERFACE	Indicates the interface IP address.
PORT	Indicates the port for the VLAN.
MAX STREAMS	Indicates the maximum number of streams.
NUM STREAMS	Indicates the current number of streams.

show ip igmp sys

View the current fast leave mode configuration and Internet Group Management Protocol (IGMP) system parameters on the switch.

Syntax

- **show ip igmp sys**
- **show ip igmp sys vrf WORD<1-16>**
- **show ip igmp sys vrfids WORD<0-512>**

Command Parameters

vrf WORD<1-16>

Specifies a VRF by name.

vrfids <0-512>

Specifies a VRF by ID.

Default

None

Command Mode

Privileged EXEC

show ip irdp

Confirm that the Router Discovery is enabled.

Syntax

- **show ip irdp**
- **show ip irdp [vrf WORD<1-16>] [vrfids WORD<0-512>]**

- **show ip irdp interface gigabitethernet <1-4059>**
- **show ip irdp interface gigabitethernet {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **show ip irdp interface vlan**
- **show ip irdp interface vlan <1-4059>**
- **show ip irdp vrf WORD<1-16>**
- **show ip irdp vrfids WORD<0-512>**

Command Parameters

interface vlan

Show route discovery per interface information.

vrfids WORD<0-512>

Show route discovery for particular vrfids

Default

None

Command Mode

Privileged EXEC

show ip msdp count

Display the number of sources and groups originated in MSDP SA messages and the number of SA from an MSDP peer.

Syntax

- **show ip msdp count vrf WORD<1-16>**
- **show ip msdp count vrfids WORD<0-512>**
- **show ip msdp count WORD<0-11>**

Command Parameters

vrf WORD<1-16>

Specifies a particular VRF. Type a name between 1-16 characters in length.

vrfids WORD<0-512>

Specifies the VRF ID.

WORD<0-11>

0-65535(2-Byte AS) 0-4294967295(4-Byte AS) Default AS Number: 0

Default

None

Command Mode

Privileged EXEC

show ip msdp mesh-group

Display the configured Mesh groups.

Syntax

- **show ip msdp mesh-group vrf WORD<1-16>**
- **show ip msdp mesh-group vrfids WORD<0-512>**
- **show ip msdp mesh-group WORD<1-64>**

Command Parameters

vrf WORD<1-16>

Specifies a particular VRF. Type a name between 1-16 characters in length.

vrfids WORD<0-512>

Specifies the VRF ID.

WORD<1-64>

Specifies the Mesh group name.

Default

None

Command Mode

Privileged EXEC

show ip msdp peer

Display detailed information about the MSDP peer.

Syntax

- **show ip msdp peer {A.B.C.D}**
- **show ip msdp peer vrf WORD<1-16>**
- **show ip msdp peer vrfids WORD<0-512>**

Command Parameters

{A.B.C.D}

Specifies the Peer address.

vrf WORD<1-16>

Specifies a particular VRF. Type a name between 1-16 characters in length.

vrfids WORD<0-512>

Specifies the VRF ID.

Default

None

Command Mode

Privileged EXEC

show ip msdp rpf

Display the rpf-peer information.

Syntax

- **show ip msdp rpf {A.B.C.D}**

Command Parameters

{A.B.C.D}

Specifies the RPF address.

vrf WORD<1-16>

Specifies a particular VRF. Type a name between 1-16 characters in length.

vrfids WORD<0-512>

Specifies the VRF ID.

Default

None

Command Mode

Privileged EXEC

show ip msdp sa-cache

Display the (S, G) state that is learned from MSDP peers.

Syntax

- **show ip msdp sa-cache group {A.B.C.D}**
- **show ip msdp sa-cache local**
- **show ip msdp sa-cache rp {A.B.C.D}**
- **show ip msdp sa-cache source {A.B.C.D}**
- **show ip msdp sa-cache vrf WORD<1-16>**
- **show ip msdp sa-cache vrfids WORD<0-512>**

Command Parameters

group {A.B.C.D}

Specifies all cache entries that match the group address.

local

Specifies the local SA cache.

rp {A.B.C.D}

Specifies cache entries that match the Rendezvous Point address.

source {A.B.C.D}

Specifies cache entries that match the source address.

vrf WORD<1-16>

Specifies a particular VRF. Type a name between 1-16 characters in length.

vrfids WORD<0-512>

Specifies the VRF ID.

Default

None

Command Mode

Privileged EXEC

show ip msdp sa-check

Display the peer information from which a router will accept SA originating from the RP and also check whether the specified(S,G,RP) would be accepted from the peer.

Syntax

- **show ip msdp sa-check source {A.B.C.D} group {A.B.C.D} rp {A.B.C.D}**
- **show ip msdp sa-check source {A.B.C.D} group {A.B.C.D} rp {A.B.C.D} peer A.B.C.D}**

- **show ip msdp sa-check source {A.B.C.D} group {A.B.C.D} rp {A.B.C.D} vrf WORD<0-16>**
- **show ip msdp sa-check source {A.B.C.D} group {A.B.C.D} rp {A.B.C.D} vrfids WORD<0-512>**

Command Parameters

group {A.B.C.D}

Specifies the group IP address.

peer {A.B.C.D}

Specifies the MSDP peer IP address.

rp {A.B.C.D}

Specifies the RP IP address.

source {A.B.C.D}

Specifies the source IP address.

vrf WORD<0-16>

Specifies a particular VRF. Type a name between 0-16 characters in length.

vrfids WORD<0-512>]

Specifies the VRF ID.

Default

None

Command Mode

Privileged EXEC

show ip msdp show-all

Display a collection of show commands output of MSDP protocol.

Syntax

- **show ip msdp show-all file WORD<1-99>**
- **show ip msdp show-all vrf WORD<1-16>**
- **show ip msdp show-all vrfids WORD<0-512>**

Command Parameters

file WORD<1-99>

Specifies the filename - {/intflash/ } <file> {string length 1...99}.

vrf WORD<1-16>

Specifies a particular VRF. Type a name between 1-16 characters in length.

vrfids WORD<0-512>

Specifies the VRF ID.

Default

None

Command Mode

Privileged EXEC

show ip msdp summary

Display the MSDP global status and peer status.

Syntax

- **show ip msdp summary vrf WORD<1-16>**
- **show ip msdp summary vrfids WORD<0-512>**

Command Parameters

vrf WORD<1-16>

Specifies a particular VRF. Type a name between 1-16 characters in length.

vrfids WORD<0-512>

Specifies the VRF ID.

Default

None

Command Mode

Privileged EXEC

show ip redistribute

Display and ensure the accuracy of the configuration settings.

Syntax

- **show ip <rip|ospf|bgp> redistribute [interface] [vrf WORD<1-16>] [vrfids WORD<0-512>]**

Command Parameters

<ospf|bgp|static|direct|rip>

Specifies the type of routes to redistribute-the protocol source.

interface

Shows rip information for each interface.

vrf WORD<1-16>

Displays rip configuration for a particular VRF.

vrfids WORD<0-512>

Specifies a list of VRF IDs.

Default

None

Command Mode

Privileged EXEC

show ipv6 fhs statistics

Displays the FHS statistics on a port or set of ports.

Syntax

- **show ipv6 fhs statistics all**
- **show ipv6 fhs statistics all {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **show ipv6 fhs statistics dhcp-guard**
- **show ipv6 fhs statistics dhcp-guard {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **show ipv6 fhs statistics nd-inspection**
- **show ipv6 fhs statistics nd-inspection {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **show ipv6 fhs statistics ra-guard**
- **show ipv6 fhs statistics ra-guard {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Displays the statistics on either a single port or a set of ports.

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

all

Displays all IPv6 FHS statistics.

dhcp-guard

Displays DHCP-Guard statistics.

nd-inspection

Displays Neighbor Discovery Inspection statistics.

ra-guard

Displays RA-Guard statistics.

Default

None

Command Mode

Privileged EXEC

show ipv6 isis accept

Displays the IPv6 IS-IS Accept Policy Information.

Syntax

- **show ipv6 isis accept**
- **show ipv6 isis accept vrf WORD<1-16>**
- **show ipv6 isis accept vrf WORD<1-16> vrfids WORD<0-512>**
- **show ipv6 isis accept vrfids WORD<0-512>**

Command Parameters

vrf WORD<1-16>

Displays the IPv6 IS-IS Accept Policy Information for a specific VRF.

vrfids WORD<0-512>

Displays the IPv6 IS-IS Accept Policy Information for a specific VRF ID.

Default

None

Command Mode

Privileged EXEC

show ipv6 isis redistribute

Display the rules for redistribution of routes into ISIS for GRT.

Syntax

- **show ipv6 isis redistribute**
- **show ipv6 isis redistribute vrf WORD<1-16>**
- **show ipv6 isis redistribute vrfids WORD<0-512>**

Command Parameters

vrf WORD<1-16>

Specifies a VRF name. The VRF parameter is optional.

vrfids WORD<0-512>

Specifies a VRF by ID. The VRF parameter is optional.

Default

The default is disabled.

Command Mode

Privileged EXEC

show ipv6 ospf default-cost

Display the IPv6 OSPF default cost information to ensure accuracy.

Syntax

- **show ipv6 ospf default-cost [vrf WORD<1-16>] [vrfids WORD<0-512>]**
- **show ipv6 ospf default-cost vrf WORD<1-16>**
- **show ipv6 ospf default-cost vrfids WORD<0-512>**

Command Parameters

vrf <WORD 1-16>

Specifies the VRF name.

vrfids <WORD 0-512>

Specifies VRF IDs.

Default

None

Command Mode

Privileged EXEC

show ipv6 ospf ipsec

Display the IPv6 OSPF IPsec information to ensure accuracy.

Syntax

- **show ipv6 ospf ipsec [vrf WORD<1-16>] [vrfids WORD<0-512>]**
- **show ipv6 ospf ipsec vrf WORD<1-16>**
- **show ipv6 ospf ipsec vrfids WORD<0-512>**

Command Parameters

vrf <WORD 1-16>

Specifies the VRF name.

vrfids <WORD 0-512>

Specifies VRF IDs.

Default

None

Command Mode

Privileged EXEC

show ipv6 ospf vrf

Display the IPv6 OSPF configuration for a particular VRF.

Syntax

- **show ipv6 ospf vrf WORD<1-16>**
- **show ipv6 ospf vrf WORD<1-16> vrfids WORD<0-512>**

Command Parameters

vrf <WORD 1-16>

Specifies the VRF name.

vrfids <WORD 0-512>

Specifies VRF IDs.

Default

None

Command Mode

Privileged EXEC

show ipv6 ospf vrfids

Display the IPv6 OSPF configuration for VRFs by VRF ID.

Syntax

- **show ipv6 ospf vrfids WORD<0-512>**

Command Parameters

vrfids <WORD 0-512>

Specifies VRF IDs.

Default

None

Command Mode

Privileged EXEC

show ipv6 rip redistiribute

Display ripng redistribute parameters

Syntax

- **show ipv6 rip redistribute**

Default

None

Command Mode

Privileged EXEC

show link-flap-detect

Show link-flap-detect configuration.

Syntax

- **show link-flap-detect**

Default

None

Command Mode

Privileged EXEC

show lldp

Display LLDP information.

Syntax

- **show lldp**
- **show lldp location-identification**

Command Parameters

location-identification

Specifies the location information parameters.

Default

None

Command Mode

Privileged EXEC

show lldp local-sys-data

Display LLDP local system data.

Syntax

- **show lldp local-sys-data**
- **show lldp local-sys-data med**

Command Parameters

med

Displays local LLDP-MED information.

Default

None

Command Mode

Privileged EXEC

show lldp med-network-policies

Displays LLDP-MED network policies.

Syntax

- **show lldp med-network-policies**
- **show lldp med-network-policies guest-voice**
- **show lldp med-network-policies guest-voice-signaling**
- **show lldp med-network-policies softphone-voice**
- **show lldp med-network-policies streaming-video**
- **show lldp med-network-policies video-conferencing**
- **show lldp med-network-policies video-signaling**
- **show lldp med-network-policies voice**
- **show lldp med-network-policies voice-signaling**

Command Parameters

guest-voice

Specifies the type of LLDP-MED network policy.

guest-voice-signaling

Specifies the type of LLDP-MED network policy.

softphone-voice

Specifies the type of LLDP-MED network policy.

streaming-video

Specifies the type of LLDP-MED network policy.

video-conferencing

Specifies the type of LLDP-MED network policy.

video-signaling

Specifies the type of LLDP-MED network policy.

voice

Specifies the type of LLDP-MED network policy.

voice-signaling

Specifies the type of LLDP-MED network policy.

Default

None

Command Mode

Privileged EXEC

show lldp neighbor

Display details of LLDP neighbors learned.

Syntax

- **show lldp neighbor**
- **show lldp neighbor detail [port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]**
- **show lldp neighbor port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} [med]**
- **show lldp neighbor summary [port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}] [med]**

Command Parameters

detail [port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]

Displays LLDP neighbor-specific information.

med

Displays LLDP neighbors learned based on LLDP-MED TLV information.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

summary

Displays the summary of the LLDP neighbors on a single port or a range of ports.

Default

None

Command Mode

Privileged EXEC

show lldp neighbor vendor-specific

Show the remote LLDP vendor-specific call server and file server information.

Syntax

- **`show lldp neighbor vendor-specific call-server`**
- **`show lldp neighbor vendor-specific file-server`**

Command Parameters

call-server

Displays the remote LLDP vendor-specific call server information.

file-server

Displays the remote LLDP vendor-specific file server information.

Default

None

Command Mode

Privileged EXEC

show lldp port

Display LLDP port information.

Syntax

- **show lldp port [{slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]}]**
- **show lldp port {slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]} [location-identification] [med-network-policies] [med-network-policies guest-voice] [med-network-policies guest-voice-signaling] [med-network-policies softphone-voice] [med-network-policies streaming-video] [med-network-policies video-conferencing] [med-network-policies video-signaling] [med-network-policies voice] [med-network-policies voice-signaling]**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

location-identification

Specifies the location information parameters for specific ports.

med-network-policies [guest-voice] | guest-voice-signaling | softphone-voice | streaming-video | video-conferencing | video-signaling | voice | voice-signaling]

Displays the LLDP-MED network policies configured on specific ports.

Default

None

Command Mode

Privileged EXEC

show lldp rx-stats

Verify that the port is receiving LLDP PDUs successfully.

Syntax

- **show lldp rx-stats**
- **show lldp rx-stats {slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]}**

Command Parameters

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all] [all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

Privileged EXEC

show lldp stats

Verify LLDP statistics.

Syntax

- **show lldp stats**

Default

None

Command Mode

Privileged EXEC

show lldp tx-stats

Verify successful LLDP transmission on a port.

Syntax

- **show lldp tx-stats**
- **show lldp tx-stats {slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]}**

Command Parameters

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all] [all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

Privileged EXEC

show lldp tx-tlv

Display Link Layer Discovery Protocol (LLDP) transmission TLVs.

Syntax

- **show lldp tx-tlv**

Default

None

Command Mode

Privileged EXEC

Command Output

The **show lldp tx-tlv** command displays the following information:

Output field	Description
Port	Specifies the port number.
PortDesc	Specifies the port description transmission TLV. The default is enabled.
SysName	Specifies the system capabilities transmission TLV. The default is enabled.
SysDesc	Specifies the system description transmission TLV. The default is enabled.
SysCap	Specifies the system name transmission TLV. The default is enabled.

Example

```
Switch:1#show lldp tx-tlv
=========================================================
                     LLDP port tlvs
=========================================================
---------------------------------------------------------
Port       PortDesc   SysName   SysDesc   SysCap    LocalMgmtAddr
---------------------------------------------------------
1/1        enabled    enabled   enabled   enabled    enabled
1/2        enabled    enabled   enabled   enabled    enabled
1/3/1      enabled    enabled   enabled   enabled    enabled
1/3/2      enabled    enabled   enabled   enabled    enabled
1/3/3      enabled    enabled   enabled   enabled    enabled
1/3/4      enabled    enabled   enabled   enabled    enabled
1/4        enabled    enabled   enabled   enabled    enabled
1/5        enabled    enabled   enabled   enabled    enabled
1/6        enabled    enabled   enabled   enabled    enabled
1/7        enabled    enabled   enabled   enabled    enabled
1/8        enabled    enabled   enabled   enabled    enabled
1/9        enabled    enabled   enabled   enabled    enabled
1/10       enabled    enabled   enabled   enabled    enabled
```

show lldp tx-tlv dot3

Display dot3 MAC/PHY configuration/status Link Layer Discovery Protocol (LLDP) TLVs.

Syntax

- **show lldp tx-tlv dot3**

Default

None

Command Mode

Privileged EXEC

Command Output

The **show lldp tx-tlv dot3** command displays the following information:

Output field	Description
Port	Specifies the port number.
MAC Physical Config Status	Specifies the status of the MAC Physical Config Status TLV. The default is disabled.

Example

```
Switch:1#show lldp tx-tlv dot3
================================================================================
                              LLDP port dot3 tlvs
================================================================================
--------------------------------------------------------------------------------
Port       MAC Physical
           Config Status
--------------------------------------------------------------------------------
1/1        disabled
1/2        enabled
1/3        enabled
1/4        disabled
1/5        disabled
```

show lldp tx-tlv med

Display Link Layer Discovery Protocol (LLDP) Media Endpoint Device (MED) TLV interface information.

Syntax

- **show lldp tx-tlv med**

Command Parameters

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)

- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

Privileged EXEC

Command Output

The **show lldp tx-tlv med** command displays the following information:

Output field	Description
Port	Specifies the port number.
MedCapabilities	Specifies the system name MED transmission TLV.
NetworkPolicy	Specifies the network policy MED transmission TLV.
Location	Specifies the system description MED transmission TLV.
ExtendedPowerViaMDI	Specifies the extended power-via-MDI Media Endpoint Device (MED) transmission TLV. This TLV is applilcable for POE-capable switches only.
Inventory	Specifies the system capabilities MED transmission TLV.

Example

```
Switch:1#show lldp tx-tlv med

================================================================================
                              LLDP port med tlvs
================================================================================
--------------------------------------------------------------------------------
Port          Med        Network   Location  ExtendedPower Inventory
           Capabilities   Policy               ViaMDI
--------------------------------------------------------------------------------
1/1        enabled       enabled   enabled   enabled       enabled
1/2        enabled       enabled   enabled   enabled       enabled
```

show lldp tx-tlv port

Display Link Layer Discovery Protocol (LLDP) transmission TLVs for transmission on a specific port.

Syntax

- **show lldp tx-tlv port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

Privileged EXEC

Command Output

The **show lldp tx-tlv port** command displays the following information:

Output field	Description
Port	Specifies the port number.
PortDesc	Specifies the port description transmission TLV.
SysName	Specifies the system capabilities transmission TLV.
SysDesc	Specifies the system description transmission TLV.
SysCap	Specifies the system name transmission TLV.

Example

```
Switch:1>show lldp tx-tlv port 1/2
=======================================================
                    LLDP port tlvs
=======================================================
-------------------------------------------------------
Port       PortDesc   SysName   SysDesc   SysCap    LocalMgmtAddr
```

```
-------------------------------------------------------
1/2        enabled    enabled   enabled   enabled   enabled
```

show lldp vendor-specific

Shows lldp vendor-specific call server or file server information.

Syntax

- **show lldp vendor-specific call-server**
- **show lldp vendor-specific file-server**

Command Parameters

call-server

Displays the LLDP vendor-specific call server information.

file-server

Displays the LLDP vendor-specific file server information.

Default

None

Command Mode

Privileged EXEC

show mac-address-entry

Shows the database status and MAC address to display the static forwarding database status.

Syntax

- **show mac-address-entry**

Default

None

Command Mode

Privileged EXEC

show pluggable-optical-modules

View Digital Diagnostic Interface (DDI) module information to view transceiver manufacturing information and characteristics, temperature and voltage information, and configuration details.

Syntax

- **show pluggable-optical-modules basic**
- **show pluggable-optical-modules basic {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **show pluggable-optical-modules config**
- **show pluggable-optical-modules detail**
- **show pluggable-optical-modules detail {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **show pluggable-optical-modules temperature**
- **show pluggable-optical-modules temperature {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **show pluggable-optical-modules voltage**
- **show pluggable-optical-modules voltage {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

basic

Shows basic transceiver information.

config

Shows pluggable optical modules configuration information.

detail

Shows detailed transceiver information. Use this parameter to see extended diagnostic information for supported Extreme Networks-branded parts.

temperature

Shows transceiver temperature information.

voltage

Shows transceiver voltage information.

Default

None

Command Mode

Privileged EXEC

show poe-main-status

View main PoE status.

Syntax

- **show poe-main-status**

Default

None

Command Mode

Privileged EXEC

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

show poe-port-status

View port PoE status.

Syntax

- **show poe-port-status**

Default

None

Command Mode

Privileged EXEC

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

show poe-power-measurement

View PoE power measurement per port.

Syntax

- **show poe-power-measurement {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

Privileged EXEC

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

show ports statistics ospf extended

Use statistics to help you monitor Open Shortest Path First (OSPF) performance.

Syntax

- **show ports statistics ospf extended {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

Privileged EXEC

Usage Guidelines

This command provides values for brouter port implementations. For IP protocol-based VLAN interface statistics, use show ip ospf ifstats on page 1447.

Command Output

The **show ports statistics ospf extended** command displays the following information:

Output field	Description
PORT_NUM	Indicates the port number.
RXLS_REQS	Indicates the number of link state update request packets received by this interface.
TXLS_REQS	Indicates the number of link state request packets transmitted by this interface.

Output field	Description
RXLS_ACKS	Indicates the number of link state acknowledge packets received by this interface.
TXLS_ACKS	Indicates the number of link state acknowledge packets transmitted by this interface.

show ports statistics ospf main

Use statistics to help you monitor Open Shortest Path First (OSPF) performance.

Syntax

- **show ports statistics ospf main {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

Privileged EXEC

Usage Guidelines

This command provides values for brouter port implementations. For IP protocol-based VLAN interface statistics, use show ip ospf ifstats on page 1447.

Command Output

The **show ports statistics ospf main** command displays the following information:

Output field	Description
PORT NUM	Indicates the port number.
RX_HELLO	Indicates the number of hello packets this interface receives.
TX_HELLO	Indicates the number of hello packets this interface transmitted.
RXDB_DESCR	Indicates the number of database descriptor packets this interface receives.
TXDB_DESCR	Indicates the number of database descriptor packets this interface transmitted.
RXLS_UPDATE	Indicates the number of link state update packets this interface receives.
TXLS_UPDATE	Indicates the number of link state update packets this interface transmitted.

show qos policer

Display ingress rate-limiting information for an interface.

Syntax

- **show qos policer interface gigabitethernet [{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]**

Command Parameters

interface gigabitEthernet *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

Privileged EXEC

show running-config

Display the current switch configuration.

Syntax

- **show running-config**
- **show running-config module {app-telemetry | boot | cfm | cli | diag | dvr | eap | endpoint-tracking | energy-saver | fa | fhs | filter | ike | ip | ipfix | ipsec | ipv6 | iqagent | isis | i-sid | lacp | license | lldp | lst | macsec | mlt | naap | nls | net-debug | node-alias | ntp | openapi | ovsdb | port | qos | radius | rate-limit | restconf | rmon | sflow | security | slpp | smtp | spbm | stg | sys | tacacs | virtualservice | vlan | web | vxlan | ptp}**
- **show running-config verbose**

Command Parameters

module {app-telemetry | boot | cfm | cli | diag | dvr | eap | endpoint-tracking | energy-saver | fa | fhs | filter | ike | ip | ipfix | ipsec | ipv6 | iqagent | isis | i-sid | lacp | license | lldp | lst | macsec | mlt | naap | nls | net-debug | node-alias | ntp | openapi | ovsdb | port | qos | radius | rate-limit | restconf | rmon | sflow | security | slpp | smtp | spbm | stg | sys | tacacs | virtualservice | vlan | web | vxlan | ptp}

Specifies the command group for which you request configuration information.

verbose

Specifies the complete list of configuration information on the switch.

Default

None

Command Mode

Privileged EXEC

Usage Guidelines

All configuration modules are not supported on all hardware platforms. For information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

Note

The output from the **show running-config** command displays an "end statement" near the end of the configuration file. This statement means that the script is exiting the Global Configuration mode and loading the rest of the configuration in Privileged EXEC mode, which is a requirement when loading the IP redistribution commands.

If you add **verbose** to the **show running-config** command, the output contains current switch configuration including software (versions), performance, VLANs (numbers, port members), ports (type, status), routes, memory, interface, and log and trace files. With the verbose command, you can view the current configuration and default values.

Example

If you make a change to the switch configuration, it displays under the specific configuration heading. The following example displays a subset of the output of this command.

```
5320-48T-8XE-FabricEngine:1>enable
5320-48T-8XE-FabricEngine:1#show running-config
Preparing to Display Configuration...
#
# Mon Dec 13 23:44:36 2021 EET
# box type              : 5320-48T-8XE-FabricEngine
# software version      : 8.6.0.0
# cli mode              : ECLI
#

#Card Info :

#  Slot 1 :
#       CardType           : 5320-48T-8XE-FabricEngine
#       CardDescription    : 5320-48T-8XE-FabricEngine
#       CardSerial#        : TB042128K-H0030
#       CardPart#          : 801107-00-02
#       CardAssemblyDate   : 20210712
#       CardHWRevision     : 02
#       CardHWConfig       :
#       AdminStatus        : up
#       OperStatus         : up


#
#!end
#
config terminal

#
# BOOT CONFIGURATION
#

boot config flags ftpd
```

```
boot config flags sshd
#boot config sio console baud 115200 1
# end boot flags

#
# SPBM CONFIGURATION
#

spbm
spbm ethertype 0x8100

#
# CLI CONFIGURATION

--More-- (q = quit)
```

show slot

Show slot configuration.

Syntax

- **show slot**
- **show slot <1>**

Command Parameters

<1>

Specifies the interface slot number <1>.

Default

None

Command Mode

Privileged EXEC

show vlan src-mac

View the VLAN source MAC addresses to display the source MAC address for any source MAC-based VLANs on the switch or for the specified VLAN.

Syntax

- **show vlan src-mac <1-4059>**

Command Parameters

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

Privileged EXEC

show vnid i-sid

Display information about all the VNIDs or use the option to specify a particular VNID.

Syntax

- **show vnid i-sid {<1-500>}**

Command Parameters

<1-500>

Displays information about the specified VNID.

Default

None

Command Mode

Privileged EXEC

show vnid mac-address-entry

Display all the VNIDs in the FDB table or use one of the options to specify a particular VNID.

Syntax

- **show vnid mac-address-entry [<1-16777215> | port <{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}> | mac <0x00:0x00:0x00:0x00:0x00:0x00> | remote]**

Command Parameters

[<1–16777215> | port < *{slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]}* **> | mac <0x00:0x00:0x00:0x00:0x00:0x00> | remote]**

Display the FDB table for the specified VNID.

Default

None

Command Mode

Privileged EXEC

show vtep local

Display the VTEP's source IP address and the name of the VRF.

Syntax

- **show vtep local**

Default

None

Command Mode

Privileged EXEC

show vtep remote

Display information about all of the remote VTEPs or use the option to specify a particular VTEP.

Syntax

- **show vtep remote [<1-500>]**

Command Parameters

<1-500>

Displays information about the specified remote VTEP.

Default

None

Command Mode

Privileged EXEC

show vtep remote name

Display the names of all remote VTEPs or use the option to specify a particular VTEP.

Syntax

- **show vtep remote name [<1-500>]**

Command Parameters

<1-500>

Displays the name of the specified remote VTEP.

Default

None

Command Mode

Privileged EXEC

software activate

Copies the software version to the boot flash file. When you use the software activate command, the system checks for hardware dependencies and prevents a downgrade if it detects a dependency. For example, if a hardware component has a minimum software version dependency, you cannot downgrade to an incompatible software version or install the hardware component in a chassis that runs an incompatible software version.

Syntax

- **software activate WORD<1-99>**

Command Parameters

WORD<1-99>

Specifies the software release version.

Default

None

Command Mode

Privileged EXEC

software add

Unpacks a software release version on the switch. The system saves software image files to the `/intflash/release/` directory.

Syntax

- **software add WORD<1-99>**

Command Parameters

WORD<1-99>

Specifies the software release version.

Default

None

Command Mode

Privileged EXEC

software add-modules

Adds modules to existing software release in /intflash/release/<version>.

Syntax

- **software add-modules WORD<1-99>**

Command Parameters

WORD<1-99>

Specifies the software release version.

Default

None

Command Mode

Privileged EXEC

software commit

Ensures the running software release is trusted.

Syntax

- **software commit**

Default

None

Command Mode

Privileged EXEC

software iqagent reinstall

Returns the ExtremeCloud IQ Agent firmware version on the switch to the version bundled with the network operating system (NOS) image currently installed on the switch.

Syntax

- **software iqagent reinstall**

Default

None

Command Mode

Privileged EXEC

software remove

Removes the software release version from the switch.

Syntax

- **software remove WORD<1-99>**

Command Parameters

WORD<1-99>

Specifies the software release version.

Default

None

Command Mode

Privileged EXEC

software reset-commit-time

Extends or reduces the commit time after you apply a software upgrade. You may need additional time to verify the software works as expected after the upgrade before you commit or roll back.

Syntax

- **software reset-commit-time**
- **software reset-commit-time <1-60>**

Command Parameters

<1-60>

Extends or reduces the commit timer. By default, the commit timer is 10 minutes. As an example, if you enter the command string of software reset-commit-time 5, you reduce the commit timer to 5 minutes. If you enter the command string of software reset-commit-time 25, you extend the commit timer by 15 minutes, for a total of 25 minutes.

Default

The default is 10 minutes.

Command Mode

Privileged EXEC

source

Source a configuration to merge a script file into the running configuration or verify the syntax of a configuration file.



Warning

You are not able to source a complete configuration file to merge it with your running configuration because the system can crash. Use the source command to merge smaller portions of a configuration into the existing configuration.



Important

Do not source a verbose configuration (verbose.cfg) with the debug stop option. The sourcing process cannot complete if you use these two options with a verbose configuration.

Syntax

- **source WORD<1-99>**
- **source WORD<1-99> debug**
- **source WORD<1-99> debug stop**
- **source WORD<1-99> debug stop syntax**
- **source WORD<1-99> debug syntax**
- **source WORD<1-99> stop**
- **source WORD<1-99> stop syntax**
- **source WORD<1-99> syntax**

Command Parameters

debug

Debugs the script by outputting the configuration commands to the screen.

stop

Stops the sourcing of a configuration if an error occurs.

syntax

Checks the syntax of the configuration file. This parameter does not load the configuration file; only verifies the syntax.

If you use this parameter with the stop parameter (source WORD<1-99> stop syntax), the system displays the output on screen and verification stops if it encounters an error.

If you use this parameter with the debug parameter (source WORD<1-99> debug syntax), the output does not stop if it encounters an error; you must review the on-screen output to verify if an error exists.

If you use this parameter by itself, it does not output to the screen or stop on error; it shows an error message, "syntax errors in script", to indicate if errors exist in the configuration file.

WORD<1-99>

Specifies a filename and location.

Default

None

Command Mode

Privileged EXEC

sys action

Reset system functions to reset all statistics counters, the console port, and the operation of the switchover function.

Syntax

- **sys action reset {console | counters}**
- **sys action reset console**
- **sys action reset counters**

Command Parameters

reset {console|counters}

Reinitializes the hardware universal asynchronous receiver transmitter (UART) drivers. Use this command only if the console connection stops responding. Resets all the statistics counters in the switch to zero. Resets the console port.

Default

None

Command Mode

Privileged EXEC

sys shutdown

Use this command to prepare the system for shutdown. This command properly shuts down the file system, and powers off all interface modules. After you use this command, you must physically disconnect the chassis power. To restore power after you use this command, you must physically turn the chassis power on again.

Syntax

- **sys shutdown**

Default

None

Command Mode

Privileged EXEC

trace ipv6 base

Configure trace parameters for the IPv6 base.

Syntax

- **trace ipv6 base disable {all|debug|error|icmp|info|ipclient|nbr|pkt|warn} [vrf WORD<1-16>]**
- **trace ipv6 base enable {all|debug|error|icmp|info|ipclient|nbr|pkt|warn} [vrf WORD<1-16>]**

Command Parameters

<all|debug|error|icmp|info|ipclient|nbr|pkt|warn>

Specifies the trace category.

disable

Disables the trace.

enable

Enables the trace.

vrf WORD<1-16>

Specifies VRF by name.

Default

None

Command Mode

Privileged EXEC

trace ipv6 forwarding

Configure trace parameters for IPv6 forwarding.

Syntax

- **trace ipv6 forwarding disable {all|debug|error|info|pkt|warn} [vrf WORD<1-16>]**
- **trace ipv6 forwarding enable {all|debug|error|info|pkt|warn} [vrf WORD<1-16>]**

Command Parameters

<all|debug|error|info|pkt|warn>

Specifies the trace category.

disable

Disables the trace.

enable

Enables the trace.

vrf WORD<1-16>

Specifies VRF by name.

Default

None

Command Mode

Privileged EXEC

trace ipv6 nd

Configure trace parameters for IPv6 neighbor discovery.

Syntax

- **trace ipv6 nd disable {all|debug|error|info|nbr|pkt|redirect|warn} [vrf WORD<1-16>]**
- **trace ipv6 nd disable {all|debug|error|info|nbr|pkt|redirect|warn} [vrf WORD<1-16>]**
- **trace ipv6 nd enable {all|debug|error|info|nbr|pkt|redirect|warn} [vrf WORD<1-16>]**
- **trace ipv6 nd enable {all|debug|error|info|nbr|pkt|redirect|warn} [vrf WORD<1-16>]**

Command Parameters

<all|debug|error|info|nbr|pkt|redirect|warn>

Specifies the trace category.

disable

Disables the trace.

enable

Enables the trace.

vrf WORD<1-16>

Specifies VRF by name.

Default

None

Command Mode

Privileged EXEC

trace ipv6 ospf

Configure trace parameters for IPv6 OSPF.

Syntax

- **trace ipv6 ospf disable {all|debug|error|info|nbr|pkt|redirect|warn} [vrf WORD<1-16>]**
- **trace ipv6 ospf enable {all|debug|error|info|nbr|pkt|redirect|warn} [vrf WORD<1-16>]**

Command Parameters

<all|debug|error|info|nbr|pkt|redirect|warn>

Specifies the trace category.

disable

Disables the trace.

enable

Enables the trace.

vrf WORD<1-16>

Specifies VRF by name.

Default

None

Command Mode

Privileged EXEC

trace ipv6 rtm

Configure trace parameters for the IPv6 routing table manager.

Syntax

- **trace ipv6 rtm disable {all|change-list|debug|error|fib|info|redist|update|warn} [vrf WORD<1-16>]**

- **trace ipv6 rtm enable {all|change-list|debug|error|fib|info|redist|update|warn} [vrf WORD<1-16>]**

Command Parameters

<all|changelist|debug|error|fib|info|redist|update|warn>

Specifies the trace category.

disable

Disables the trace.

enable

Enables the trace.

vrf WORD<1-16>

Specifies VRF by name.

Default

None

Command Mode

Privileged EXEC

trace ipv6 transport

Configure trace parameters for IPv6 transport.

Syntax

- **trace ipv6 transport disable {all|common|tcp|udp} [vrf WORD<1-16>]**
- **trace ipv6 transport enable {all|common|tcp|udp} [vrf WORD<1-16>]**

Command Parameters

<all|common|tcp|udp>

Specifies the trace category.

disable

Disables the trace.

enable

Enables the trace.

vrf WORD<1-16>

Specifies VRF by name.

Default

None

Command Mode

Privileged EXEC

traceroute

Use traceroute to determine the route packets take through a network to a destination.

Syntax



Note

Command parameters for **traceroute** vary depending on the parameter input order. All syntax possibilities are not listed. Use the CLI help to verify the syntax for available parameters during command contextual input.

- **traceroute WORD<0-256>**
- **traceroute WORD<0-256> <1-1176>**
- **traceroute WORD<0-256> <1-1176> mgmt <clip | oob | vlan>**
- **traceroute WORD<0-256> <1-1444>**
- **traceroute WORD<0-256> grt**
- **traceroute WORD<0-256> grt source**
- **traceroute WORD<0-256> -m <1-255>**
- **traceroute WORD<0-256> -m <1-255> mgmt <clip | oob | vlan>**
- **traceroute WORD<0-256> -p <0-65535>**
- **traceroute WORD<0-256> -p <0-65535> mgmt <clip | oob | vlan>**
- **traceroute WORD<0-256> -q <1-255>**
- **traceroute WORD<0-256> -q <1-255> mgmt <clip | oob | vlan>**
- **traceroute WORD<0-256> source WORD<1-256>**
- **traceroute WORD<0-256> -v**
- **traceroute WORD<0-256> vrf WORD<1-16>**
- **traceroute WORD<0-256> -w <1-255>**
- **traceroute WORD<0-256> -w <1-255> mgmt <clip | oob | vlan>**

Command Parameters

<1-1176>

Specifies the wait time per probe. The range depends on the hardware platform.

<1-1444>

Specifies the size of the probe packet. The range depends on the hardware platform.

grt

Specifies traceroute is executed in Global Router (GRT) context.

-m <1-255>

Specifies the is maximum time-to-live (TTL).

mgmt

Run a traceroute test using a zero source IP address and route lookup in the main table.

mgmt clip

Run a traceroute test using a Segmented Management Instance. If you do not use the mgmt parameter, the traceroute command uses the IP routing stack to initiate the traceroute request.

mgmt oob

Run a traceroute test using a Segmented Management Instance. If you do not use the mgmt parameter, the traceroute command uses the IP routing stack to initiate the traceroute request.

mgmt vlan

Run a traceroute test using a Segmented Management Instance. If you do not use the mgmt parameter, the traceroute command uses the IP routing stack to initiate the traceroute request.

-p <1-65535>

Specifies the base UDP port number.



Note

If you send a traceroute command to a Segmented Management Interface or interface address, you must use a UDP port range of 33434-33534.

-q <1-255>

Specifies the number of probes per TTL.

source WORD<1-256>

Specifies the source IP address for use in traceroutes.

-v

Specifies verbose mode (detailed output).

vrf WORD<1-16>

Specifies the VRF instance by VRF name.

-w <1-255>

Specifies the wait time per probe.

WORD<0-256>

Specifies the hostname, or IP address.

Default

None

Command Mode

Privileged EXEC

Usage Guidelines

The *-v*, *source*, and *vrf* parameters are not available if the *mgmt* keyword is specified.

The *mgmt oob* parameter only applies to hardware with a dedicated physical management interface.

usb-stop

Use this command to safely remove the USB drive from the USB port.

Syntax

- **usb-stop**

Default

None

Command Mode

Privileged EXEC

virtual-service

Configures virtual service on the switch.

Syntax

- **virtual-service WORD<1-128> console**

Command Parameters

console

Accesses the console for the specific virtual.

WORD<1-128>

Specifies the virtual service name.

Default

None

Command Mode

Privileged EXEC

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

This command also works in Global Configuration mode but does not display if you use the question mark (?) help in that mode to view the list of available commands.

virtual-service copy-file WORD<1-256> WORD<1-256>

Copies a file between the network operating system (NOS) and a VM or between VMs.

Syntax

- **virtual-service copy-file WORD<1-256> WORD<1-256>**

Command Parameters

WORD<1-256> WORD<1-256>

Specifies the source and destination file to copy.

To specify a VM location, use the format `<VM_name>:<VM_file_path/filename>`.

To specify a NOS location, use the format `</file_path/filename>` where the valid path can be one of the following:

- `/intflash`
- `/extflash`
- `/usb`
- `/var/lib/insight/packages`

Default

None.

Command Mode

Privileged EXEC

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

This command also works in Global Configuration mode but does not display if you use the question mark (?) help in that mode to view the list of available commands.

virtual-service WORD<1-128> install

Installs the virtual service package.

Syntax

- **virtual-service WORD <1-128> install package WORD<1-512>**

Command Parameters

package WORD<1-512>

Specifies the package to be installed.

WORD<1-128>

Specifies the virtual service name.

Default

None

Command Mode

Privileged EXEC

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

This command also works in Global Configuration mode but does not display if you use the question mark (?) help in that mode to view the list of available commands.

virtual-service WORD<1-128> uninstall

Uninstalls the virtual service.

Syntax

- **virtual-service WORD<1-128> uninstall**

Command Parameters

WORD<1-128>

Specifies the virtual service name.

Default

None

Command Mode

Privileged EXEC

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

This command also works in Global Configuration mode but does not display if you use the question mark (?) help in that mode to view the list of available commands.

write memory

Save to memory.

Syntax

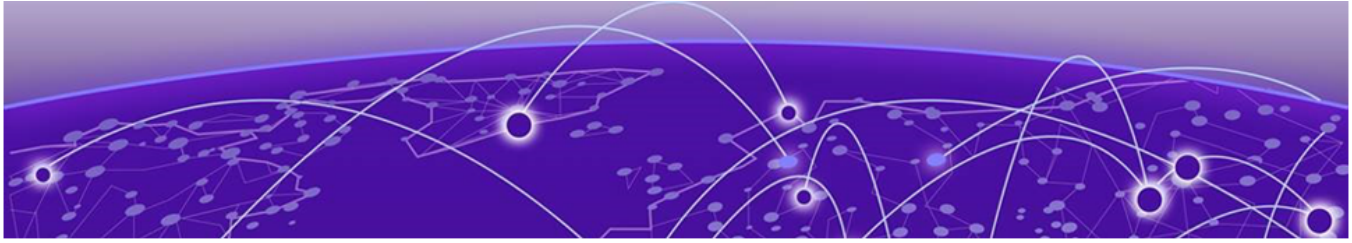
- **write memory**

Default

None

Command Mode

Privileged EXEC



RA-guard Configuration

The following topics document commands available in RA-guard Configuration mode of the command line interface (CLI).

hop-limit maximum

Enables verification of the advertised hop count limit.

Syntax

- **default hop-limit maximum**
- **hop-limit maximum <0-255>**

Command Parameters

<0-255>

Specifies hop limit count.

Default

The default maximum limit is 0.

Command Mode

RA-guard Configuration

hop-limit minimum

Enables verification of the advertised hop count limit.

Syntax

- **default hop-limit minimum**
- **hop-limit minimum <0-255>**

Command Parameters

<0-255>

Specifies hop limit count.

Default

The default minimum limit is 0.

Command Mode

RA-guard Configuration

managed-config-flag

Enables verification of managed address configuration flag in the advertised RA packet.

Syntax

- **default managed-config-flag**
- **managed-config-flag <none |on | off>**

Command Parameters

none

Set managed config flag to none.

off

Set managed config flag to off.

on

Set managed config flat to on.

Default

None

Command Mode

RA-guard Configuration

match ra-macaddr-list

Enables verification of the sender Source MAC address against the configured mac-access-list.

Syntax

- **default match ra-macaddr-list**
- **match ra-macaddr-list WORD<1-64>**
- **no match ra-macaddr-list**

Command Parameters

WORD<1–64>

Specifies the MAC access list name.

Default

None

Command Mode

RA-guard Configuration

match ra-prefix-list

Enables verification of the advertised prefixes in inspected messages against the configured authorized prefix list.

Syntax

- **default match ra-prefix-list**
- **match ra-prefix-list WORD<1-64>**
- **no match ra-prefix-list**

Command Parameters

WORD<1–64>

Specifies the prefix list name.

Default

None

Command Mode

RA-guard Configuration

match ra-srcaddr-list

Enables verification of the sender's IPv6 address in inspected messages against the configured authorized device source access list.

Syntax

- **default match ra-srcaddr-list**
- **match ra-srcaddr-list WORD<1-64>**

- **no match ra-srcaddr-list**

Command Parameters

WORD<1–64>

Specifies the MAC access list name.

Default

None

Command Mode

RA-guard Configuration

router-preference

Enables verification of the advertised default router-preference parameter value is lower than or equal to a specified limit.

Syntax

- **default router-preference maximum**
- **router-preference maximum {none | high | low | medium}**

Command Parameters

maximum {none | high | low | medium}

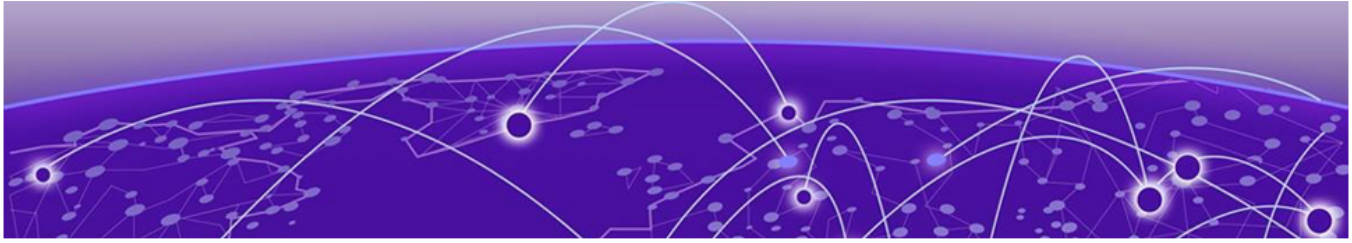
Verifies if the advertised default router-preference parameter value is lower than or equal to a specified limit.

Default

None

Command Mode

RA-guard Configuration



RIP Router Configuration

The following topics document commands available in RIP Router Configuration mode of the command line interface (CLI).

default-metric (for RIP)

Configure RIP default import metric. This value is used by RIP announce of OSPF internal routes if the policy does not specify metric. 0 is used for deconfiguration.

Syntax

- **default default-metric**
- **default-metric <0-15>**

Command Parameters

<0-15>

Configures the value of default import metric to import a route into RIP domain.

Default

The default value is 8.

Command Mode

RIP Router Configuration

ipv6 default-information enable

Enable IPv6 default information enable.

Syntax

- **default ipv6 default-information enable**
- **ipv6 default-information enable**
- **no ipv6 default-information enable**

Default

The default is disabled.

Command Mode

RIP Router Configuration

ipv6 default-information metric

Configure IPv6 default route metric value.

Syntax

- **default ipv6 default-information metric**
- **ipv6 default-information metric <1-15>**

Command Parameters

<1-15>

Specifies the IPv6 route metric value.

Default

None

Command Mode

RIP Router Configuration

ipv6 redistribute bgp enable

Enable BGP redistribute.

Syntax

- **default ipv6 redistribute bgp enable**
- **ipv6 redistribute bgp enable**
- **no ipv6 redistribute bgp enable**

Default

The default is disabled.

Command Mode

RIP Router Configuration

ipv6 redistribute bgp enable (For RIPng)

Enable IPv6 BGP redistribute.

Syntax

- **ipv6 redistribute bgp enable**

Default

None

Command Mode

RIP Router Configuration

ipv6 redistribute direct enable

Enable direct redistribute.

Syntax

- **default ipv6 redistribute direct enable**
- **ipv6 redistribute direct enable**
- **no ipv6 redistribute direct enable**

Default

The default is disabled.

Command Mode

RIP Router Configuration

ipv6 redistribute isis enable

Enable ISIS redistribute.

Syntax

- **default ipv6 redistribute isis enable**
- **ipv6 redistribute isis enable**
- **no ipv6 redistribute isis enable**

Default

The default is disabled.

Command Mode

RIP Router Configuration

ipv6 redistribute ospf enable

Enable OSPF redistribute.

Syntax

- **default ipv6 redistribute ospf enable**
- **ipv6 redistribute ospf enable**
- **no ipv6 redistribute ospf enable**

Default

The default is disabled.

Command Mode

RIP Router Configuration

ipv6 redistribute static enable

Enable static redistribute.

Syntax

- **default ipv6 redistribute static enable**
- **ipv6 redistribute static enable**
- **no ipv6 redistribute static enable**

Default

The default is disabled.

Command Mode

RIP Router Configuration

ipv6 timers basic holddown

Configure RIPng holddown timer.

Syntax

- **ipv6 timers basic holddown <0-360>**

Command Parameters

<0-360>

Specifies the RIPng holddown timer in seconds.

Default

None

Command Mode

RIP Router Configuration

ipv6 timers basic timeout

Configure RIPng timeout timer.

Syntax

- **ipv6 timers basic timeout <0-360>**

Command Parameters

<0-360>

Specifies the RIPng timeout timer in seconds.

Default

None

Command Mode

RIP Router Configuration

ipv6 timers basic update

Configure RIPng update timer.

Syntax

- **ipv6 timers basic update <0-360>**

Command Parameters

<0-360>

Specifies the RIPng update timer in seconds.

Default

None

Command Mode

RIP Router Configuration

network (for RIP)

Enable RIP on a network.

Syntax

- **network {A.B.C.D}**
- **no network {A.B.C.D}**

Command Parameters

{A.B.C.D}

Specifies the IP address of the network.

Default

None

Command Mode

RIP Router Configuration

redistribute (for RIP)

Redistribute learned routes into RIP.

Syntax

- **default redistribute { direct | isis | ospf | rip | static }**
- **default redistribute { direct | isis | ospf | rip | static } enable**
- **default redistribute { direct | isis | ospf | rip | static } enable vrf-src WORD<1-16>**
- **default redistribute { direct | isis | ospf | rip | static } metric**

- **default redistribute { direct | isis | ospf | rip | static } metric vrf-src WORD<1-16>**
- **default redistribute { direct | isis | ospf | rip | static } route-map**
- **default redistribute { direct | isis | ospf | rip | static } route-map vrf-src WORD<1-16>**
- **default redistribute { direct | isis | ospf | rip | static } vrf-src WORD<1-16>**
- **default redistribute WORD<0-32>**
- **default redistribute WORD<0-32> enable**
- **default redistribute WORD<0-32> enable vrf-src WORD<1-16>**
- **default redistribute WORD<0-32> metric**
- **default redistribute WORD<0-32> metric vrf-src WORD<1-16>**
- **default redistribute WORD<0-32> route-map**
- **default redistribute WORD<0-32> route-map vrf-src WORD<1-16>**
- **default redistribute WORD<0-32> vrf-src WORD<1-16>**
- **no redistribute { direct | isis | ospf | rip | static }**
- **no redistribute { direct | isis | ospf | rip | static } enable**
- **no redistribute { direct | isis | ospf | rip | static } enable vrf-src WORD<1-16>**
- **no redistribute { direct | isis | ospf | rip | static } route-map**
- **no redistribute { direct | isis | ospf | rip | static } route-map vrf-src WORD<1-16>**
- **no redistribute { direct | isis | ospf | rip | static } vrf-src WORD<1-16>**
- **no redistribute WORD<0-32>**
- **no redistribute WORD<0-32> enable**
- **no redistribute WORD<0-32> enable vrf-src WORD<1-16>**
- **no redistribute WORD<0-32> route-map**
- **no redistribute WORD<0-32> route-map vrf-src WORD<1-16>**
- **no redistribute WORD<0-32> vrf-src WORD<1-16>**
- **redistribute { direct | isis | ospf | rip | static }**
- **redistribute { direct | isis | ospf | rip | static } enable**
- **redistribute { direct | isis | ospf | rip | static } enable vrf-src WORD<1-16>**
- **redistribute { direct | isis | ospf | rip | static } metric <0-65535>**
- **redistribute { direct | isis | ospf | rip | static } metric <0-65535> vrf-src WORD<1-16>**
- **redistribute { direct | isis | ospf | rip | static } route-map WORD<0-64>**

- **redistribute { direct | isis | ospf | rip | static } route-map WORD<0-64> vrf-src WORD<1-16>**
- **redistribute { direct | isis | ospf | rip | static } vrf-src WORD<1-16>**
- **redistribute WORD<0-32>**
- **redistribute WORD<0-32> enable**
- **redistribute WORD<0-32> enable vrf-src WORD<1-16>**
- **redistribute WORD<0-32> metric <0-65535>**
- **redistribute WORD<0-32> metric <0-65535> vrf-src WORD<1-16>**
- **redistribute WORD<0-32> route-map WORD<0-64>**
- **redistribute WORD<0-32> route-map WORD<0-64> vrf-src WORD<1-16>**
- **redistribute WORD<0-32> vrf-src WORD<1-16>**

Command Parameters

enable

Enables route redistribution of Intermediate-System-to-Intermediate-System (ISIS) learned IP routes into RIP.

metric <0-65535>

Configures the metric (cost) to apply to redistributed routes. The default is 1.

route-map WORD<0-64>

Configures the route policy to apply to redistributed routes.

vrf-src WORD<1-16>

Specifies the source VRF instance. This parameter is not required for redistribution within the same VRF.

WORD<0-32>

Specifies the protocol type. The possible values are bgp, direct, isis, ospf, rip, or static.

Default

By default, route redistribution is disabled.

Command Mode

RIP Router Configuration

timers basic holddown (for RIP)

Configures the RIP hold-down timer value, the length of time (in seconds) that RIP continues to advertise a network after determining that it is unreachable.

Syntax

- **default timers basic holddown**
- **timers basic holddown <0-360>**

Command Parameters

<0-360>

Configures the holddown timer value.

Default

The default is 120 seconds.

Command Mode

RIP Router Configuration

timers basic timeout

Configure the RIP timeout interval.

Syntax

- **default timers basic timeout**
- **timers basic timeout <15-259200>**
- **timers basic timeout <15-259200> [holddown <0-360>] [update <1-360>]**

Command Parameters

<15-259200>

Configures the value of default import metric to import a route into RIP domain.

holddown <0-360>

Configures the RIP hold-down timer value, the length of time (in seconds) that RIP continues to advertise a network after it determines that the network is unreachable. The default is 120.

update <1-360>

Configures the RIP update timer. The update time is the time interval, in seconds, between RIP updates. The default is 30.

Default

The default value is 180.

Command Mode

RIP Router Configuration

timers basic update

Configure the RIP update timer. The update time is the time interval between RIP updates.

Syntax

- **default timers basic update**
- **timers basic update <1-360>**

Command Parameters

<1-360>

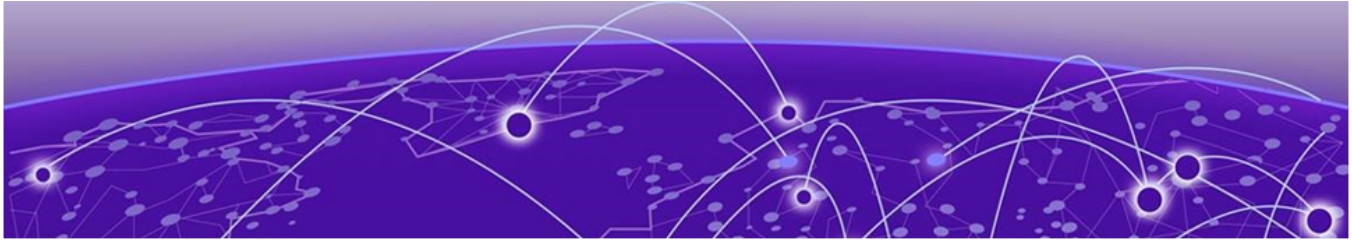
Configures the update interval.

Default

The default is 30 seconds.

Command Mode

RIP Router Configuration



Route-Map Configuration

The following topics document commands available in Route-Map Configuration mode of the command line interface (CLI).

enable (for a route policy)

Enable the route policy.

Syntax

- **default enable**
- **enable**
- **no enable**

Default

The default is disable.

Command Mode

Route-Map Configuration

match as-path

If configured, the switch Match the as-path attribute of the Border Gateway Protocol (BGP) routes against the contents of the specified AS-lists. This command is used only for BGP routes and ignored for all other route types.

Syntax

- **default match as-path WORD<0-256>**
- **match as-path WORD<0-256>**
- **no match as-path WORD<0-256>**

Command Parameters

WORD<0-256>

Specifies the list IDs of AS-lists, separated by a comma.

Default

None

Command Mode

Route-Map Configuration

match community

If configured, the switch Match the community attribute of the BGP routes against the contents of the specified community lists. This command is used only for BGP routes and ignored for all other route types.

Syntax

- **default match community WORD<0-256>**
- **match community WORD<0-256>**
- **no match community WORD<0-256>**

Command Parameters

WORD<0-256>

Specifies the list IDs of up to four defined community lists, separated by a comma.

Default

None

Command Mode

Route-Map Configuration

match community-exact

When disabled, match community-exact results in a match when the community attribute of the BGP routes match any entry of any community-list specified in match community. When enabled, match community-exact results in a match when the community attribute of the BGP routes Match all of the entries of all the community lists specified in match community.

Syntax

- **default match community-exact**
- **default match community-exact enable**
- **match community-exact**

- **match community-exact enable**
- **no match community-exact**
- **no match community-exact enable**

Command Parameters

enable

Enables match community-exact.

Default

The default is disable.

Command Mode

Route-Map Configuration

match extcommunity

Match the extended community.

Syntax

- **default match extcommunity WORD<0-1027>**
- **match extcommunity WORD<0-1027>**
- **no match extcommunity WORD<0-1027>**

Command Parameters

WORD<0-1027>

Specifies the list IDs of AS-lists, separated by a comma.

Default

None

Command Mode

Route-Map Configuration

match interface

Match the IP address of the interface by which the RIP route was learned against the contents of the specified prefix list. This command is used only for RIP routes and ignored for all other route types.

Syntax

- **default match interface WORD<0-259>**
- **match interface WORD<0-259>**
- **no match interface WORD<0-259>**

Command Parameters

WORD<0-259>

Specifies the name of up to four defined prefix lists, separated by a comma.

Default

None

Command Mode

Route-Map Configuration

match local-preference

Match the preference value from 0-2147483647.

Syntax

- **default match local-preference**
- **match local-preference <0-2147483647>**

Command Parameters

<0-2147483647>

Specifies the preference value.

Default

The default is 0.

Command Mode

Route-Map Configuration

match metric

Match the metric of the incoming advertisement or existing route against the specified value. If 0, this field is ignored.

Syntax

- **default match metric**
- **match metric <0-65535>**

Command Parameters

<0-65535>

Specifies the metric to match.

Default

The default is 0.

Command Mode

Route-Map Configuration

match metric-type-isis

Match ISIS metric type, applicable to ISIS only, ignored otherwise.

Syntax

- **default match metric-type-isis**
- **match metric-type-isis {any | internal | external}**

Command Parameters

{ any | internal | external}

Specifies IS-IS routes of the specified type. • internal – permits or denies routes that are internal to the IS-IS domain. • external – permits or denies routes that originate from an external routing protocol domain. • any – permits or denies both internal routes as well as external routes.

Default

The default is any.

Command Mode

Route-Map Configuration

match multicast-group

Match the multicast group IP address against the contents of a specific prefix list.

Syntax

- **match multicast-group WORD<0-259>**

Command Parameters

WORD<0-259>

Specifies the name of the prefix list.

Default

None

Command Mode

Route-Map Configuration

match multicast-source

Match the source multicast IP address against the contents of a specific prefix list.

Syntax

- **Match multicast-source WORD<0-259>**

Command Parameters

WORD<0-259>

Specifies the name of the prefix list.

Default

None

Command Mode

Route-Map Configuration

match network

Match the destination network against the contents of the specified prefix lists.

Syntax

- **default match network WORD<0-259>**
- **match network WORD<0-259>**

- **no match network WORD<0-259>**

Command Parameters

WORD<0-259>

Specifies the name of up to four defined prefix lists, separated by a comma.

Default

None

Command Mode

Route-Map Configuration

match next-hop

Match the next-hop IP address of the route against the contents of the specified prefix list. This command applies only to nonlocal routes.

Syntax

- **default match next-hop WORD<0-259>**
- **match next-hop WORD<0-259>**
- **no match next-hop WORD<0-259>**

Command Parameters

WORD<0-259>

Specifies the name of up to four defined prefix lists, separated by a comma.

Default

None

Command Mode

Route-Map Configuration

match protocol

Match the protocol through which the route is learned.

Syntax

- **default match protocol**
- **match protocol WORD<0-60>**
- **no match protocol**
- **no match protocol WORD<0-60>**

Command Parameters

WORD<0-60>

Specifies the protocol as any|xxx, where xxx is local, OSPF, External BGP (EBGP), Internal BGP (IBGP), RIP, static, or any combination, in a string length 0 to 60.

Default

The default is any.

Command Mode

Route-Map Configuration

match route-source

Match the next-hop IP address for RIP routes and advertising router IDs for OSPF routes against the contents of the specified prefix list. This option is ignored for all other route types.

Syntax

- **default match route-source WORD<0-259>**
- **match route-source WORD<0-259>**
- **no match route-source WORD<0-259>**

Command Parameters

WORD<0-259>

Specifies the name of up to four defined prefix lists, separated by a comma.

Default

None

Command Mode

Route-Map Configuration

match route-type

Configure a specific route type to match. This command applies only to OSPF routes.

Syntax

- **default match route-type**
- **match route-type { any | local | internal | external | external-1 | external-2 }**

Command Parameters

{ any | local | internal | external | external-1 | external-2}

Specifies OSPF routes of the specified type only (External-1 or External-2). Any other value is ignored.

Default

The default is any.

Command Mode

Route-Map Configuration

match tag

Specify a list of tags used during the match criteria process.

Syntax

- **default match tag**
- **match tag WORD<0-256>**
- **no match tag**

Command Parameters

WORD<0-256>

Specifies one or more tag values.

Default

None

Command Mode

Route-Map Configuration

match vrf

Configure a specific VRF to match.

Syntax

- **default match vrf WORD<1-16>**
- **match vrf WORD<1-16>**
- **no match vrf WORD<1-16>**

Command Parameters

WORD<1-16>

Specifies the VRF name.

Default

None

Command Mode

Route-Map Configuration

match vrfids

Configure a specific VRF to match.

Syntax

- **default match vrfids WORD<0-511>**
- **match vrfids WORD<0-511>**
- **no match vrfids WORD<0-511>**

Command Parameters

WORD<0-511>

Specifies the VRF ID.

Default

None

Command Mode

Route-Map Configuration

name

Rename a policy and changes the name field for all sequence numbers under the given policy.

Syntax

- **name WORD<1-64>**

Command Parameters

WORD<1-64>

Specifies the new name for the policy.

Default

None

Command Mode

Route-Map Configuration

permit

Specifies the action to take when a permit or deny policy is selected for a specific route. Permit allows the route, deny (no permit) ignores the route.

Syntax

- **default permit**
- **no permit**
- **permit**

Default

The default is permit.

Command Mode

Route-Map Configuration

set as-path

Add the AS number of the AS-list to the BGP routes that match this policy.

Syntax

- **default set as-path WORD<0-256>**
- **no set as-path WORD<0-256>**
- **set as-path WORD<0-256>**

Command Parameters

WORD<0-256>

Specifies the list ID of up to four defined AS-lists separated by a comma.

Default

None

Command Mode

Route-Map Configuration

set as-path-mode

Configure the AS path mode.

Syntax

- **default set as-path-mode**
- **set as-path-mode prepend**
- **set as-path-mode tag**

Command Parameters

prepend

Prepends the Autonomous System (AS) number of the AS-list specified in set-as-path to the old as-path attribute of the BGP routes that match this policy.

tag

Configures the Autonomous System (AS) path mode to tag.

Default

The default is prepend.

Command Mode

Route-Map Configuration

set automatic-tag

Configure the tag automatically. This command is used for BGP routes only.

Syntax

- **default set automatic-tag**
- **default set automatic-tag enable**
- **no set automatic-tag**
- **no set automatic-tag enable**
- **set automatic-tag**
- **set automatic-tag enable**

Command Parameters

enable

Enables this configuration.

Default

The default is disable.

Command Mode

Route-Map Configuration

set community

Add the community number of the community list to the BGP routes that match this policy.

Syntax

- **default set community WORD<0-256>**
- **no set community WORD<0-256>**
- **set community WORD<0-256>**

Command Parameters

WORD<0-256>

Specifies the list ID of up to four defined community lists separated by a comma.

Default

None

Command Mode

Route-Map Configuration

set community-mode

Configure the community mode.

Syntax

- **default set community-mode**
- **set community-mode additive**
- **set community-mode none**
- **set community-mode unchanged**

Command Parameters

additive

Prepends the community number of the community list specified in set-community to the old community path attribute of the BGP routes that match this policy.

none

Removes the community path attribute of the BGP routes that match this policy to the specified value.

unchanged

Configures the community mode to unchanged.

Default

The default is unchanged.

Command Mode

Route-Map Configuration

set data-isid

Set the data service instance identifier (I-SID) for multicast routed policy.

Syntax

- **set data-isid <1-15999999>**

Command Parameters

<1-15999999>

Specifies the I-SID number.

Default

None

Command Mode

Route-Map Configuration

set injectlist

Replace the destination network of the route that Match this policy with the contents of the specified prefix list.

Syntax

- **default set injectlist**
- **no set injectlist**
- **set injectlist WORD<0-1027>**

Command Parameters

WORD<0-1027>

Specifies one prefix list by name.

Default

None

Command Mode

Route-Map Configuration

set ip-preference

Configure the preference to a value greater than 0. Specify the route preference value to assign to the routes that match this policy. This command applies to accept policies only.

Syntax

- **default set ip-preference**
- **set ip-preference <0-255>**

Command Parameters

<0-255>

Assigns the preference to the routes. If you configure the default, the global preference value is used.

Default

The default is 0.

Command Mode

Route-Map Configuration

set local-preference

Specify a value used during the route decision process in the BGP protocol. This command applies to BGP only.

Syntax

- **default set local-preference**
- **set local-preference <0-65535>**

Command Parameters

<0-65535>

Specifies the local preference value.

Default

The default is 0.

Command Mode

Route-Map Configuration

set mask

Configure the mask of the route that matches this policy. This command applies only to RIP accept policies.

Syntax

- **default set mask**
- **no set mask**
- **set mask {A.B.C.D}**

Command Parameters

{A.B.C.D}

Specifies a valid contiguous IP mask.

Default

The default is 0.0.0.0.

Command Mode

Route-Map Configuration

set metric

Configure the metric value for the route while announcing a redistribution. If you configure the default, the original cost of the route is advertised into OSPF; for RIP, the original cost of the route or defaultimport- metric is used.

Syntax

- **default set metric**
- **set metric <0-65535>**

Command Parameters

<0-65535>

Specifies a metric value.

Default

The default is 0.

Command Mode

Route-Map Configuration

set metric-type

Configure the metric type for the routes to announce into the OSPF domain that Match this policy. This command applies only for OSPF announce policies.

Syntax

- **default set metric-type**
- **set metric-type { type1 | type2 }**

Command Parameters

{ type1 | type2 }

Specifies the metric type to announce.

Default

The default is type 2.

Command Mode

Route-Map Configuration

set metric-type-internal

Configure the MED value for routes advertised to EBGP neighbors to the specified IGP metric value.

Syntax

- **default set metric-type-internal**
- **set metric-type-internal <0-1>**

Command Parameters

<0-1>

Specifies the Interior Gateway Protocol (IGP) metric value.

Default

The default is 0.

Command Mode

Route-Map Configuration

set metric-type-isis

Set ISIS metric type, applicable to ISIS only, ignored otherwise.

Syntax

- **default set metric-type-isis**
- **set metric-type-isis {any | internal | external}**

Command Parameters

{ any | internal | external}

Specifies IS-IS routes of the specified type. • internal – permits or denies routes that are internal to the IS-IS domain. • external – permits or denies routes that originate from an external routing protocol domain. • any – permits or denies both internal routes as well as external routes.

Default

The default is any.

Command Mode

Route-Map Configuration

set-metric-type-live-metric

Configure metric type for BGP routes. This command applies to BGP policies only, ignored otherwise.

Syntax

- **default set-metric-type-live-metric**
- **set-metric-type-live-metric**

Default

The default is disable.

Command Mode

Route-Map Configuration

set next-hop

Specify the IPv4 or IPv6 address of the next-hop router.

Syntax

- **default set next-hop**
- **no set next-hop**
- **set next-hop WORD<1-256>**

Command Parameters

WORD<1-256>

Specifies the IP address of the next-hop router.

Default

None

Command Mode

Route-Map Configuration

set nssa-pbit

Configure the not so stubby area (NSSA) translation P bit. This command applies to OSPF announce policies only.

Syntax

- **default set nssa-pbit**
- **default set nssa-pbit enable**
- **no set nssa-pbit**
- **no set nssa-pbit enable**
- **set nssa-pbit**
- **set nssa-pbit enable**

Command Parameters

enable

Enables P bit translation.

Default

The default is enable.

Command Mode

Route-Map Configuration

set origin

Change the origin path attribute of the BGP routes that match this policy to the specified value.

Syntax

- **default set origin**

- **set origin { igp | egp | incomplete }**

Command Parameters

{ igp | egp | incomplete }

Specifies the origin path attribute.

Default

The default is unchanged.

Command Mode

Route-Map Configuration

set origin-egp-as

Configure the origin EGP autonomous system (AS). This command applies to BGP only.

Syntax

- **default set origin-egp-as**
- **set origin-egp-as <0-65535>**

Command Parameters

<0-65535>

Indicates the remote Autonomous System (AS) number.

Default

The default is 0.

Command Mode

Route-Map Configuration

set rx-only

Configures the receivers (rx) only for the routed multicast policy.

Syntax

- **set rx-only**

Default

None

Command Mode

Route-Map Configuration

set tag

Configure the tag of the destination routing protocol. If not specified, the switch forwards the tag value in the source routing protocol.

Syntax

- **default set tag**
- **set tag <0-65535>**

Command Parameters

<0-65535>

Specifies the tag value. A value of 0 indicates that this parameter is not set.

Default

The default is 0.

Command Mode

Route-Map Configuration

set tx-only

Configures the senders (tx) only for the routed multicast policy.

Syntax

- **set tx-only**

Default

None

Command Mode

Route-Map Configuration

set weight

Configure the weight for the routing table. This command applies to BGP only. This value overrides the weight configured through NetworkTableEntry, FilterListWeight, or NeighborWeight.

Syntax

- **default set weight**
- **set weight <0-65535>**

Command Parameters

<0-65535>

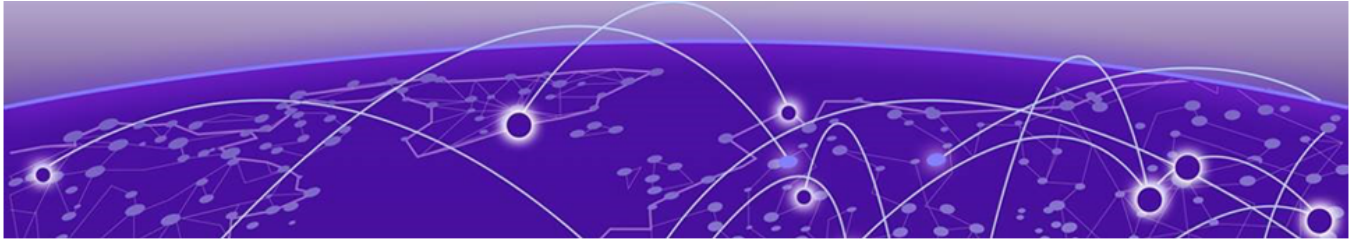
Specifies the weight value. A value of 0 indicates that this parameter is not set.

Default

The default is 0.

Command Mode

Route-Map Configuration



User EXEC

The following topics document commands available in User EXEC mode of the command line interface (CLI).

clear ip dhcp-server leases

Clears all DHCP Server leases.

Syntax

- **clear ip dhcp-server leases**

Default

None

Command Mode

User EXEC

clear ip dhcp-server log

Clears all DHCP Server logs.

Syntax

- **clear ip dhcp-server log**

Default

None

Command Mode

User EXEC

clear-stats

Clear port statistic counters.

Syntax

- **clear-stats**
- **clear-stats port [{slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]}] [mgmt]**

Command Parameters

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all] [all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

mgmt

Clear the management port stats.

Default

None

Command Mode

User EXEC

clock set

Configure the calendar time in the form of month, day, year, hour, minute, and second.

Syntax

- **clock set <MMddyyyyhhmmss>**

Command Parameters

<MMddyyyyhhmmss>

Specifies the month, day, year, hours, minutes, and seconds.

Default

None

Command Mode

User EXEC

Usage Guidelines

Configuring time using the **clock set** command on a switch that also uses Network Time Protocol (NTP) can cause ports to be inactive.

As a best practice, do not configure time using the **clock set** command. Instead, rely on NTP to synchronize the internal clocks.

cpld-install app

Update the latest version of CPLD (Complex Programmable Logic Device) image for the app module.

Syntax

```
cpld-install app [WORD<1-99>]
```

Command Parameters

Word<1-99>

Specifies the image filename.

Note

This parameter is optional. If you do not specify the filename, the command checks the image file from the running OS file system.

Default

None

Command Mode

User EXEC

cpld-install boot

Update the latest version of CPLD (Complex Programmable Logic Device) image for the boot module.

Syntax

```
cpld-install boot [WORD<1-99>]
```

Command Parameters

Word<1-99>

Specifies the image filename.

Note
This parameter is optional. If you do not specify the filename, the command checks the image file from the running OS file system.

Default

None

Command Mode

User EXEC

cpld-install main

Update the latest version of CPLD (Complex Programmable Logic Device) image for the main module.

Syntax

```
cpld-install main [WORD<1-99>]
```

Command Parameters

Word<1-99>

Specifies the image filename.

Note
This parameter is optional. If you do not specify the filename, the command checks the image file from the running OS file system.

Default

None

Command Mode

User EXEC

cpld-install port

Update the latest version of CPLD image for the port module.

Syntax

```
cpld-install port [WORD<1-99>]
```

Command Parameters

Word<1-99>

Specifies the image filename.

Note

This parameter is optional. If you do not specify the filename, the command checks the image file from the running OS file system.

Default

None

Command Mode

User EXEC

debug-file remove

Clears all types of debug files. To remove a specific file, use the remove command instead. Debug files include core, archive, dmalloc, wd_stats, PMEM and flrec files.

Syntax

- **debug-file remove**
- **debug-file remove {slot[-slot][,...]}**
- **debug-file remove {slot[-slot][,...]} all**
- **debug-file remove all**

Command Parameters

{slot[-slot][,...]}

Removes the debug files for one or more specific slots. You can specify a specific slot number , a range of slots, or use the value of all to view information for all slots. This parameter does not apply to all hardware platforms.

all

Removes all types of debug files. If you do not use this parameter, you remove all but the most recent file.

Default

None

Command Mode

User EXEC

dump ar

To aid in troubleshooting, a dump of the hardware records can be captured.

Syntax

- **dump ar <1> WORD <1-1536> <0-3>**

Command Parameters

<0-3>

Specifies the verbosity from 0 to 3. Higher numbers specify more verbosity.

WORD<1-1536>

Specifies a record type in the AR table. Options include vlan, ip_subnet, mac_vlan, mac, arp, ip, ipmc, ip_filter, protocol, all.

Default

None

Command Mode

User EXEC

dvr apply redistribute

Applies the configuration of Distributed Virtual Routing (DvR) route redistribution.

Syntax

- **dvr apply redistribute**
- **dvr apply redistribute vrf WORD<1-16>**

Command Parameters

vrf WORD<1-16>

Applies DvR route redistribution configuration for the specified VRF.

Default

None

Command Mode

User EXEC

dvr apply redistribute direct

Applies the configuration of Distributed Virtual Routing (DvR) route redistribution for direct routes.

Syntax

- **dvr apply redistribute direct**
- **dvr apply redistribute direct vrf WORD<1-16>**

Command Parameters

none

Applies DvR route redistribution configuration of direct routes on the GRT.

vrf WORD<1-16>

Applies DvR route redistribution configuration of direct routes for the specified VRF.

Default

none

Command Mode

User EXEC

dvr apply redistribute static

Applies the configuration of Distributed Virtual Routing (DvR) route redistribution for static routes.

Syntax

- **dvr apply redistribute static**
- **dvr apply redistribute static vrf WORD<1-16>**

Command Parameters

none

Applies DvR route redistribution configuration of static routes on the GRT.

vrf WORD<1-16>

Applies DvR route redistribution configuration of static routes for the specified VRF.

Default

none

Command Mode

User EXEC

eapol init

Initialize Extensible Authentication Protocol (EAPoL) administration traffic control direction.

Syntax

- **eapol init {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

User EXEC

enable

Use this command to enter Privileged EXEC mode.

Syntax

- **enable**

Default

None

Command Mode

User EXEC

exit

Use this command to exit a command mode and enter the lower command mode. If you use this command in User EXEC mode, you end the current CLI session.

Syntax

- **exit**

Default

None

Command Mode

User EXEC

file-checksum

Calculates or compares a Message Digest 5 algorithm (MD5) or SHA512 digest for a specified file.

Syntax

- **file-checksum md5 WORD<1-99>**
- **file-checksum md5 WORD<1-99> -a**
- **file-checksum md5 WORD<1-99> -a -f**
- **file-checksum md5 WORD<1-99> -c**
- **file-checksum md5 WORD<1-99> -c -a**
- **file-checksum md5 WORD<1-99> -c -f**
- **file-checksum md5 WORD<1-99> -f WORD<1-99>**
- **file-checksum md5 WORD<1-99> -r**
- **file-checksum md5 WORD<1-99> -r -a**

- **file-checksum md5 WORD<1-99> -r -c**
- **file-checksum md5 WORD<1-99> -r -f**
- **file-checksum sha512 WORD<1-99>**
- **file-checksum sha512 WORD<1-99> -a**
- **file-checksum sha512 WORD<1-99> -a -f**
- **file-checksum sha512 WORD<1-99> -c**
- **file-checksum sha512 WORD<1-99> -c -a**
- **file-checksum sha512 WORD<1-99> -c -f**
- **file-checksum sha512 WORD<1-99> -f WORD<1-99>**
- **file-checksum sha512 WORD<1-99> -r**
- **file-checksum sha512 WORD<1-99> -r -a**
- **file-checksum sha512 WORD<1-99> -r -c**
- **file-checksum sha512 WORD<1-99> -r -f**

Command Parameters

-a

Adds data to the output file instead of overwriting it.

-c

Compares the checksum of the specified file with the checksum present in the checksum file name.

-f

Stores the result of the checksum to a file. If the output file specified is one of the reserved filenames on the switch, the command fails with the error message: Error: Invalid operation.

md5

Calculate or compare the Message Digest 5 algorithm (MD5) digest to verify the MD5 checksum for a specified file. The md5 command displays the output on screen or stores the output in a file that you specify.

-r

Reverses the output.

sha512

Calculate or compare the SHA512 digest for a file.

WORD<1-99>

Specifies the filename.

Default

None

Command Mode

User EXEC

help

Use this command to see parameters for a particular command. You can use this command in any mode. You can also request Help at any point by entering a question mark after a command, which shows the available options.

Syntax

- **help**
- **help WORD<1-255>**

Command Parameters

WORD<1-255>

Enters a command to see the options for that command.

Default

None

Command Mode

User EXEC

ip bgp apply redistribute

Configure a redistribute entry to announce routes of a certain source protocol type into the Border Gateway Protocol (BGP) domain, for example, static, Routing Information Protocol (RIP), or direct routes.

Syntax

- **ip bgp apply redistribute**
- **ip bgp apply redistribute direct**
- **ip bgp apply redistribute direct vrf WORD<1-16>**
- **ip bgp apply redistribute direct vrf-src WORD<1-16>**
- **ip bgp apply redistribute isis**
- **ip bgp apply redistribute isis vrf WORD<1-16>**
- **ip bgp apply redistribute isis vrf-src WORD<1-16>**
- **ip bgp apply redistribute ospf**
- **ip bgp apply redistribute ospf vrf WORD<1-16>**

- **ip bgp apply redistribute ospf vrf-src WORD<1-16>**
- **ip bgp apply redistribute rip**
- **ip bgp apply redistribute rip vrf WORD<1-16>**
- **ip bgp apply redistribute rip vrf-src WORD<1-16>**
- **ip bgp apply redistribute static**
- **ip bgp apply redistribute static vrf WORD<1-16>**
- **ip bgp apply redistribute static vrf-src WORD<1-16>**
- **ip bgp apply redistribute vrf WORD<1-16>**

Command Parameters

{direct|dvr|isis|ospf|rip|static|vrf}

Specifies the protocol type.

vrf WORD<1-16>

Specifies a VRF instance by name.

vrf-src WORD<1-16>

Specifies the source VRF instance. This parameter is not required for redistribution within the same VRF.

Default

None

Command Mode

User EXEC

ip bgp restart-bgp

Restart BGP for a particular peer.

Syntax

- **ip bgp restart-bgp**
- **ip bgp restart-bgp neighbor WORD<0-1536>**
- **ip bgp restart-bgp neighbor WORD<0-1536> soft-reconfiguration {in|out}**
- **ip bgp restart-bgp neighbor WORD<0-1536> vrf WORD<1-16>**
- **ip bgp restart-bgp vrf WORD<1-16>**
- **ip bgp restart-bgp vrf WORD<1-16> soft-reconfiguration {in|out}**

Command Parameters

soft-configuration {in|out}

Enables or disables soft-reconfiguration. If peer soft-reconfiguration is enabled in the in-bound direction, the policy can be changed and routes can be re-learned without having to reset the BGP connection. Enabling soft-reconfiguration, using the in parameter, causes the system to store all BGP routes in local memory. Even non-best routes will be stored if soft-configuration in is enabled. Setting the value to out forces the neighbor to send out all the updates to the remote neighbor without resetting the connection.

vrf WORD<1-16>

Applies the BGP configuration for a particular VRF.

WORD<1-1536>

Specifies the neighbor IP address or the neighbor group name.

Default

The default for soft-reconfiguration is: in

Command Mode

User EXEC

ip bgp stats-clear-counters

Clears the BGP configuration statistics.

Syntax

- **ip bgp stats-clear-counters**
- **ip bgp stats-clear-counters neighbor <nbr_ipaddr|peer-group-name>**
- **ip bgp stats-clear-counters vrf WORD<1-16>**

Command Parameters

neighbor <nbr_ipaddress|peer-groupname>

Clears the BGP configuration statistics for the peer IP address or the peer group name.

vrf WORD<1-16>

Clears the statistics for the BGP configuration for a particular VRF.

Default

None

Command Mode

User EXEC

ip ecmp path-list apply

Apply changes to all Equal Cost Multipath (ECMP) path-list configurations.

Syntax

- **ip ecmp path-list apply**
- **ip ecmp path-list apply vrf WORD<1-16>**
- **ip ecmp pathlist-apply**
- **ip ecmp pathlist-apply vrf WORD<1-16>**

Command Parameters

path-list apply

Apply changes to all Equal Cost Multipath (ECMP) path-list configurations.

vrf WORD<1-16>

Apply changes to all Equal Cost Multipath (ECMP) path-list configurations for a particular VRF.

Default

None

Command Mode

User EXEC

ip igmp flush port

Use this command to flush Internet Group Management Protocol (IGMP) group members on a port.

Syntax

- **ip igmp flush port {slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]} grp-member**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

grp-member

Specifies a group member.

Default

None

Command Mode

User EXEC

ip igmp flush vlan

Use this command to flush Internet Group Management Protocol (IGMP) group members, the multicast router and senders.

Syntax

- **ip igmp flush vlan <1-4059>**
- **ip igmp flush vlan <1-4059> grp-member**
- **ip igmp flush vlan <1-4059> mrouter**
- **ip igmp flush vlan <1-4059> sender**
- **ip igmp flush vlan <1-4059> sender {A.B.C.D}**
- **ip igmp flush vlan <1-4059> sender {A.B.C.D} {A.B.C.D}**

Command Parameters

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

grp-member

Specifies a group member.

mrouter

Specifies a multicast router.

sender {A.B.C.D} {A.B.C.D}

Specifies a sender. The first IP address specifies the source IP address of the sender. The second IP address specifies the group IP address of the sender.

Default

None

Command Mode

User EXEC

ip ospf apply accept

Apply OSPF accept policy changes to allow the configuration changes in the policy to take effect in an OSPF Accept context (and to prevent the switch from attempting to apply the changes one by one after each configuration change).

Syntax

- **ip ospf apply accept**
- **ip ospf apply accept vrf WORD<1-16>**

Command Parameters

[vrf WORD<1-16>]

Specifies the name of the VRF.

apply

Commits entered changes. Issue this command after modifying any policy configuration that affects an OSPF accept policy.

Default

The default is disabled.

Command Mode

User EXEC

ip ospf apply accept adv-rtr

Apply the OSPF accept policy change to accept external routes from a specified advertising route.

Syntax

- **ip ospf apply accept adv-rtr {A.B.C.D}**
- **ip ospf apply accept adv-rtr {A.B.C.D} vrf WORD<1-16>**

Command Parameters

{A.B.C.D}

Specifies the advertising router IP address.

vrf WORD<1-16>

Specifies the configuration for a particular VRF. WORD<1-16> specifies the VRF name.

Default

None

Command Mode

User EXEC

ip ospf apply redistribute

Apply the OSPF redistribution.

Syntax

- **ip ospf apply redistribute**
- **ip ospf apply redistribute {bgp | direct | isis | ospf | rip | static |dvr}**
- **ip ospf apply redistribute {bgp | direct | isis | ospf | rip | static |dvr} vrf WORD<1-16>**
- **ip ospf apply redistribute {bgp | direct | isis | ospf | rip | static |dvr} vrf WORD<1-16> vrf-src WORD<1-16>**
- **ip ospf apply redistribute {bgp | direct | isis | ospf | rip | static |dvr} vrf-src WORD<1-16>**
- **ip ospf apply redistribute vrf WORD<1-16>**
- **ip ospf apply redistribute WORD<1-32>**

- **ip ospf apply redistribute WORD<1-32> vrf WORD<1-16>**
- **ip ospf apply redistribute WORD<1-32> vrf-src WORD<1-16>**

Command Parameters

{bgp | direct | isis | ospf | rip | static | dvr }

Specifies the type of routes to be redistributed (the protocol source), including BGP, RIP, OSPF, ISIS, DVR, static, and direct.

vrf WORD<1-16>

Specifies the VRF instance by name. When applying a redistribution instance that redistributes from a nonzero VRF to VRF 0 (the global router), do not specify the destination VRF; only specify the source VRF.

vrf-src WORD<1-16>

Specifies the source VRF instance. This parameter is not required for redistribution within the same VRF.

Default

None

Command Mode

User EXEC

ip ospf spf-run

Force the switch to update its shortest-path calculations so that the switch uses the latest OSPF routing information.

Syntax

- **ip ospf spf-run**
- **ip ospf spf-run vrf WORD<1-16>**

Command Parameters

vrf WORD<1-16>

Specifies a VRF instance by name.

Default

None

Command Mode

User EXEC

ip rip apply redistribute

Apply RIP redistribution.

Syntax

- **ip rip apply redistribute**
- **ip rip apply redistribute**
- **ip rip apply redistribute { direct | isis | ospf | rip | static }**
- **ip rip apply redistribute { direct | isis | ospf | rip | static } vrf WORD<1-16>**
- **ip rip apply redistribute { direct | isis | ospf | rip | static } vrf WORD<1-16> vrf-src WORD<1-16>**
- **ip rip apply redistribute { direct | isis | ospf | rip | static } vrf-src WORD<1-16>**
- **ip rip apply redistribute bgp**
- **ip rip apply redistribute bgp vrf WORD<1-16>**
- **ip rip apply redistribute bgp vrf-src WORD<1-16>**
- **ip rip apply redistribute direct**
- **ip rip apply redistribute direct vrf WORD<1-16>**
- **ip rip apply redistribute direct vrf-src WORD<1-16>**
- **ip rip apply redistribute dvr**
- **ip rip apply redistribute dvr vrf WORD<1-16>**
- **ip rip apply redistribute dvr vrf-src WORD<1-16>**
- **ip rip apply redistribute isis**
- **ip rip apply redistribute isis vrf WORD<1-16>**
- **ip rip apply redistribute isis vrf-src WORD<1-16>**
- **ip rip apply redistribute ospf**
- **ip rip apply redistribute ospf vrf WORD<1-16>**
- **ip rip apply redistribute ospf vrf-src WORD<1-16>**
- **ip rip apply redistribute rip**
- **ip rip apply redistribute rip vrf WORD<1-16>**
- **ip rip apply redistribute rip vrf-src WORD<1-16>**
- **ip rip apply redistribute static**
- **ip rip apply redistribute static vrf WORD<1-16>**
- **ip rip apply redistribute static vrf-src WORD<1-16>**

- **ip rip apply redistribute vrf WORD<1-16>**
- **ip rip apply redistribute vrf WORD<1-16>**
- **ip rip apply redistribute vrf WORD<1-16>**

Command Parameters

{ direct | isis | ospf | rip | static }

Specifies the type of routes to be redistributed (the protocol source), including OSPF, static, direct, RIP.

{bgp | direct | dvr | isis | ospf | rip | static | vrf}

Specifies the protocol type.

vrf WORD<1-16>

Specifies the VRF instance by name. When applying a redistribution instance that redistributes from a nonzero VRF to VRF 0 (the global router), do not specify the destination VRF; only specify the source VRF.

vrf WORD<1-16>

Specifies a VRF instance by name.

vrf-src WORD<0-16>

Specifies the source VRF instance. This parameter is not required for redistribution within the same VRF.

vrf-src WORD<1-16>

Specifies the source VRF instance. This parameter is not required for redistribution within the same VRF.

Default

None

Command Mode

User EXEC

ip spb-multicast-policy apply

Applies the IP SPB Multicast Policy on a particular VRF.

Syntax

- **ip spb-multicast-policy apply**
- **ip spb-multicast-policy apply vrf WORD<1-16>**

Command Parameters

vrf WORD<1-16>

Specifies the VRF name.

Default

None

Command Mode

User EXEC

ipv6 bgp apply redistribute

Apply bgp redistribute commands

Syntax

- **ipv6 bgp apply redistribute**
- **ipv6 bgp apply redistribute direct [vrf WORD<1-16]**
- **ipv6 bgp apply redistribute isis [vrf WORD<1-16]**
- **ipv6 bgp apply redistribute ospf [vrf WORD<1-16]**
- **ipv6 bgp apply redistribute rip**
- **ipv6 bgp apply redistribute static [vrf WORD<1-16]**
- **ipv6 bgp apply redistribute vrf WORD<1-16**

Command Parameters

direct

Enter the protocol type direct.

isis

Enter the protocol type isis.

ospf

Enter the protocol type ospf.

rip

Enter the protocol type ripng.

static

Enter the protocol type static.

vrf WORD<1-16>

Apply BGP configuration for a particular VRF.

Default

None

Command Mode

User EXEC

ipv6 isis apply accept

Applies the configured IPv6 Intermediate-System-to-Intermediate-System (IS-IS) accept policies.

Syntax

- **ipv6 isis apply accept**
- **ipv6 isis apply accept vrf WORD<1-16>**

Command Parameters

vrf WORD<1-16>

Applies the configured IPv6 IS-IS accept policies for the specified VRF.

Default

None

Command Mode

User EXEC

ipv6 isis apply redistribute

Apply the IPv6 Intermediate-System-to-Intermediate-System (IS-IS) redistribution.

Syntax

- **ipv6 isis apply redistribute**
- **ipv6 isis apply redistribute {bgp | direct | isis | ospf | rip | static}**
- **ipv6 isis apply redistribute {bgp | direct | isis | ospf | static } vrf WORD<1-16>**
- **ipv6 isis apply redistribute vrf WORD<1-16>**

Command Parameters

{ bgp | direct | isis | rip | static | vrf}

Specifies a protocol type.

vrf WORD<1-16>

Specifies the VRF name.

Default

None

Command Mode

User EXEC

ipv6 mld flush

Flushes MLD group members and senders.

Syntax

- **ipv6 mld flush port {slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]} grp-member**
- **ipv6 mld flush vlan <1-4059> grp-member**
- **ipv6 mld flush vlan <1-4059> sender**

Command Parameters

grp-member

Flushes MLD group members.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all] [all]}*

Flushes MLD group members by brouter port.

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

sender

Flushes MLD senders.

vlan *<1-4059>*

Flushes MLD group members or senders by VLAN.

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

User EXEC

ipv6 ospf apply redistribute

Apply the OSPF redistribution.

Syntax

- **ipv6 ospf apply redistribute**
- **ipv6 ospf apply redistribute {bgp | direct | isis | ospf | rip | static }**
- **ipv6 ospf apply redistribute {bgp | direct | isis | ospf | rip | static } vrf WORD<1-16>**
- **ipv6 ospf apply redistribute vrf WORD<1-16>**

Command Parameters

{ bgp| direct | isis | rip | static | vrf}

Specifies a protocol type.

vrf WORD<1-16>

Specifies the VRF name.

Default

None

Command Mode

User EXEC

isis apply accept

Apply IS-IS accept policy changes. This command can disrupt traffic and cause temporary traffic loss. After you apply accept policy changes, the command reapplies the accept policies, which deletes all of the IS-IS routes, and adds the IS-IS routes again. You should make all the relevant accept policy changes, and then apply the changes at the end.

Syntax

- **isis apply accept**
- **isis apply accept vrf WORD<1-16>**

Command Parameters

vrf WORD<1-16>

Specifies a VRF instance.

Default

None

Command Mode

User EXEC

isis apply redistribute

Apply the redistribution of the specified protocol into the Shortest Path Bridging MAC (SPBM) network.

Syntax

- **isis apply redistribute**
- **isis apply redistribute bgp**
- **isis apply redistribute bgp vrf WORD<1-16>**
- **isis apply redistribute direct**
- **isis apply redistribute direct vrf WORD<1-16>**
- **isis apply redistribute ospf**
- **isis apply redistribute ospf vrf WORD<1-16>**
- **isis apply redistribute rip**
- **isis apply redistribute rip vrf WORD<1-16>**
- **isis apply redistribute static**

- **isis apply redistribute static vrf WORD<1-16>**
- **isis apply redistribute vrf WORD<1-16>**

Command Parameters

{bgp | direct | isis | ospf | rip | static | vrf}

Specifies the protocol type.

WORD<1-16>

Specifies the VRF name.

Default

None

Command Mode

User EXEC

isis dup-detection-temp-disable

Temporarily disables isis duplicate detection

Syntax

- **isis dup-detection-temp-disable**

Default

None

Command Mode

User EXEC

isis multi-area ip apply redistribute routed-multicast

Configures the Intermediate-System-to-Intermediate-System (IS-IS) Multi-area SPB IPv4 multicast routing redistribution for home to remote direction, remote to home direction, or a specific Virtual Router Forwarding (VRF) instance.

Syntax

- **isis multi-area ip apply redistribute routed-multicast**
- **isis multi-area ip apply redistribute routed-multicast [home-to-remote]**

- **isis multi-area ip apply redistribute routed-multicast [home-to-remote] [vrf WORD<1-16>]**
- **isis multi-area ip apply redistribute routed-multicast [remote-to-home]**
- **isis multi-area ip apply redistribute routed-multicast [remote-to-home] [vrf WORD<1-16>]**
- **isis multi-area ip apply redistribute routed-multicast [vrf WORD<1-16>]**

Command Parameters

home-to-remote

Applies the multicast routing redistribution configuration for home to remote direction.

remote-to-home

Applies the multicast routing redistribution configuration for remote to home direction.

vrf WORD<1-16>

Applies the multicast routing redistribution configuration for specific Virtual Forwarding Router (VRF) instance.

Default

The default is none.

Command Mode

User EXEC

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

isis multi-area ip apply redistribute static-isid-routed-multicast

Applies the Intermediate-System-to-Intermediate-System (IS-IS) Multi-area SPB IPv4 static I-SID multicast routing redistribution.

Syntax

- **isis multi-area ip apply redistribute static-isid-routed-multicast**

Default

None

Command Mode

User EXEC

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

isis multi-area ip apply redistribute unicast

Configures the Intermediate-System-to-Intermediate-System (IS-IS) Multi-area SPB IPv4 unicast redistribution for home to remote direction, remote to home direction, or a specific Virtual Router Forwarding (VRF) instance.

Syntax

- **isis multi-area ip apply redistribute unicast**
- **isis multi-area ip apply redistribute unicast [home-to-remote]**
- **isis multi-area ip apply redistribute unicast [home-to-remote] [vrf WORD<1-16>]**
- **isis multi-area ip apply redistribute unicast [remote-to-home]**
- **isis multi-area ip apply redistribute unicast [remote-to-home] [vrf WORD<1-16>]**
- **isis multi-area ip apply redistribute unicast [vrf WORD<1-16>]**

Command Parameters

home-to-remote

Applies the unicast redistribution configuration for home to remote direction.

remote-to-home

Applies the unicast redistribution configuration for remote to home direction.

vrf WORD<1-16>

Applies the unicast redistribution configuration for specific VRF instance.

Default

The default is none.

Command Mode

User EXEC

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

isis multi-area ipv6 apply redistribute unicast

Configures the Intermediate-System-to-Intermediate-System (IS-IS) Multi-area SPB IPv6 unicast redistribution for home to remote direction, remote to home direction, or a specific Virtual Router Forwarding (VRF) instance.

Syntax

- **isis multi-area ipv6 apply redistribute unicast**
- **isis multi-area ipv6 apply redistribute unicast [home-to-remote]**
- **isis multi-area ipv6 apply redistribute unicast [home-to-remote] [vrf WORD<1-16>]**
- **isis multi-area ipv6 apply redistribute unicast [remote-to-home]**
- **isis multi-area ipv6 apply redistribute unicast [remote-to-home] [vrf WORD<1-16>]**
- **isis multi-area ipv6 apply redistribute unicast [vrf WORD<1-16>]**

Command Parameters

home-to-remote

Applies the unicast redistribution configuration for home to remote direction.

remote-to-home

Applies the unicast redistribution configuration for remote to home direction.

vrf WORD<1-16>

Applies the unicast redistribution configuration for specific VRF instance.

Default

The default is none.

Command Mode

User EXEC

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

isis multi-area l2 apply redistribute i-sid

Configures the IS-IS Multi-area SPB layer 2 I-SID redistribution globally.

Syntax

- **isis multi-area l2 apply redistribute i-sid**

Default

The default is none.

Command Mode

User EXEC

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

isis multi-area l2 apply redistribute snoop-multicast

Configures the IS-IS Multi-area SPB layer 2 multicast snooping redistribution globally.

Syntax

- **isis multi-area l2 apply redistribute snoop-multicast**
- **isis multi-area l2 apply redistribute snoop-multicast [home-to-remote]**
- **isis multi-area l2 apply redistribute snoop-multicast [remote-to-home]**

Command Parameters

home-to-remote

Applies the layer 2 multicast snooping redistribution configuration for home to remote direction.

remote-to-home

Applies the layer 2 multicast snooping redistribution configuration for remote to home direction.

Default

The default is none.

Command Mode

User EXEC

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

l2 ping anycast-gw <1-15999999>

Trigger a Layer 2 ping, which acts like a native ping. Enable Connectivity Fault Management (CFM) to debug Layer 2. It can also help you debug ARP problems by providing the ability to troubleshoot next hop ARP records.

Syntax

- **l2 ping anycast-gw <1-15999999> [burst-count <1–200>] [data-tlv-size <0–400>] [frame-size <64–1500>] [priority <0–7>] [source-mode <nodal | smltVirtual>] [testfill-pattern <all-zero | all-zero-crc |pseudo-random-bit-sequence | pseudo-random-bit-sequence-crc>] [time-out <1–10>] [vrf WORD<1–16>]**

Command Parameters

anycast-gw <1-15999999>

Specifies the Anycast IP Gateway service instance identifier (I-SID).

burst-count <1-200>

Specifies the burst count.

data-tlv-size <0-400>

Specifies the data Type-Length-Value (TLV) size. The default is 0.

frame-size <64-1500>

Specifies the frame size. The default is 0.

priority <0-7>

Specifies the priority. The default is 7.

source-mode <nodal|smltVirtual>

Specifies the source mode of nodal or smltVirtual. Nodal MPs provide both MEP and MIP functionality for SPBM deployments. Nodal MPs are associated with a B-VLAN and are VLAN encapsulated packets. The switch supports SMLT interaction with SPBM. The platform uses two B-VIDs into the core from each pair of SMLT terminating nodes. Both nodes advertise the Nodal BMAC into the core on both

B-VIDS. In addition each node advertises the SMLT virtual BMAC on one of the two B-VLANs. The default is nodal.

testfill-pattern <all-zero|all-zero-crc|pseudo-random-bit-sequence|pseudo-random-bit-sequence-crc>

Specifies the testfill pattern:

- all-zero: null signal without cyclic redundancy check
- all-zero-crc: null signal with cyclic redundancy check with 32-bit polynomial
- pseudo-random-bit-sequence: PRBS without cyclic redundancy check
- pseudo-random-bit-sequence-crc: PBRS with cyclic redundancy check with 32-bit polynomial

A cyclic redundancy check is a code that detects errors. The default is all-zero.

time-out <1-10>

Specifies the interval in seconds. The default is 3.

vrf WORD<1-16>

Specifies the VRF name.

Default

None

Command Mode

User EXEC

Usage Guidelines

The *source-mode smltVirtual* parameter does not apply to 4220 Series or 5320 Series.

l2 ping ip-address

Trigger a Layer 2 ping, which acts like a native ping. Enable Connectivity Fault Management (CFM) to debug Layer 2. It can also help you debug ARP problems by providing the ability to troubleshoot next hop ARP records.

Syntax

- **l2 ping {ip-address WORD<0-255>} [burst-count <1-200>] [data-tlv-size <0-400>] [frame-size <64-1500>] [priority <0-7>] [source-mode <nodal|smltVirtual>] [testfill-pattern <all-zero|all-zero-crc|pseudo-random-bit-sequence|pseudo-random-bit-sequence-crc>] [time-out <1-10>] [vrf WORD<1-16>]**

Command Parameters

burst-count <1-200>

Specifies the burst count.

data-tlv-size <0-400>

Specifies the data Type-Length-Value (TLV) size. The default is 0.

frame-size <64-1500>

Specifies the frame size. The default is 0.

priority <0-7>

Specifies the priority. The default is 7.

source-mode <nodal|smltVirtual>

Specifies the source mode of nodal or smltVirtual. Nodal MPs provide both MEP and MIP functionality for SPBM deployments. Nodal MPs are associated with a B-VLAN and are VLAN encapsulated packets. The switch supports SMLT interaction with SPBM. The platform uses two B-VIDs into the core from each pair of SMLT terminating nodes. Both nodes advertise the Nodal BMAC into the core on both B-VIDS. In addition each node advertises the SMLT virtual BMAC on one of the two B-VLANs. The default is nodal.

testfill-pattern <all-zero|all-zero-crc|pseudo-random-bit-sequence|pseudo-random-bit-sequence-crc>

Specifies the testfill pattern:

- all-zero: null signal without cyclic redundancy check
- all-zero-crc: null signal with cyclic redundancy check with 32-bit polynomial
- pseudo-random-bit-sequence: PRBS without cyclic redundancy check
- pseudo-random-bit-sequence-crc: PBRS with cyclic redundancy check with 32-bit polynomial

A cyclic redundancy check is a code that detects errors. The default is all-zero.

time-out <1-10>

Specifies the interval in seconds. The default is 3.

vrf WORD<1-16>

Specifies the VRF name.

WORD<0-255>

Specifies the IP address.

Default

None

Command Mode

User EXEC

Usage Guidelines

The *source-mode smltVirtual* parameter does not apply to 4220 Series or 5320 Series.

l2 ping vlan

Trigger a Layer 2 ping, which acts like a native ping. Enable Connectivity Fault Management (CFM) to debug Layer 2. It can also help you debug ARP problems by providing the ability to troubleshoot next hop ARP records.

Syntax

- **l2 ping {vlan <1-4059> routernodename WORD<0-255> | vlan <1-4059> mac <0x00:0x00:0x00:0x00:0x00:0x00>} [burst-count <1-200>] [data-tlv-size <0-400>] [frame-size <64-1500>] [priority <0-7>] [source-mode <nodal|smltVirtual>] [testfill-pattern <all-zero|all-zero-crc|pseudo-random-bit-sequence|pseudo-random-bit-sequence-crc>] [time-out <1-10>]**

Command Parameters

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

burst-count <1-200>

Specifies the burst count.

data-tlv-size <0-400>

Specifies the data Type-Length-Value (TLV) size. The default is 0.

frame-size <64-1500>

Specifies the frame size. The default is 0.

mac <0x00:0x00:0x00:0x00:0x00:0x00>

Specifies the MAC address.

priority <0-7>

Specifies the priority. The default is 7.

source-mode <nodal|smltVirtual>

Specifies the source mode of nodal or smltVirtual. Nodal MPs provide both MEP and MIP functionality for SPBM deployments. Nodal MPs are associated with a B-VLAN and are VLAN encapsulated packets. The switch supports SMLT interaction with SPBM. The platform uses two B-VIDs into the core from each pair of SMLT terminating nodes. Both nodes advertise the Nodal BMAC into the core on both B-VIDS. In addition each node advertises the SMLT virtual BMAC on one of the two B-VLANs. The default is nodal.

routernodename WORD<0-255>

Specifies the router node name.

testfill-pattern <all-zero|all-zero-crc|pseudo-random-bit-sequence|pseudo-random-bit-sequence-crc>

Specifies the testfill pattern:

- all-zero: null signal without cyclic redundancy check
- all-zero-crc: null signal with cyclic redundancy check with 32-bit polynomial
- pseudo-random-bit-sequence: PRBS without cyclic redundancy check
- pseudo-random-bit-sequence-crc: PBRS with cyclic redundancy check with 32-bit polynomial

A cyclic redundancy check is a code that detects errors. The default is all-zero.

time-out <1-10>

Specifies the interval in seconds. The default is 3.

Default

None

Command Mode

User EXEC

Usage Guidelines

The *source-mode smltVirtual* parameter does not apply to 4220 Seriesor 5320 Series.

l2 tracemroute

Trigger a Layer 2 multicast traceroute. Enable Connectivity Fault Management (CFM) to debug Layer 2.

Syntax

- **l2 tracemroute source {A.B.C.D} group {A.B.C.D}**
- **l2 tracemroute source {A.B.C.D} group {A.B.C.D} priority <0-7>**
- **l2 tracemroute source {A.B.C.D} group {A.B.C.D} ttl-value <1-255>**
- **l2 tracemroute source {A.B.C.D} group {A.B.C.D} vlan <1-4059>**
- **l2 tracemroute source {A.B.C.D} group {A.B.C.D} vrf WORD<1-16>**

Command Parameters

group {A.B.C.D}

Specifies the multicast group address.

priority <0-7>

Specifies the priority. The default is 7.

source {A.B.C.D}

Specifies the source address.

ttl-value <1-255>

Specifies the time-to-live value for the trace.

vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

vrf WORD<1-16>

Specifies the VRF name.

Default

None

Command Mode

User EXEC

Command Output

The **`l2 tracemroute`** command displays the following information for a VLAN:

Output field	Description
Source	Specifies the source IP address of the flow where the multicast trace tree originates.
Group	Specifies the IP address of the multicast group.
VLAN	Specifies the VLAN.
BMAC	Specifies the backbone MAC address.
B-VLAN	Specifies the backbone VLAN.
I-SID	Specifies the service identifier.

The **l2 tracemroute** command displays the following information for a VRF:

Output field	Description
Source	Specifies the source IP address of the flow where the multicast trace tree originates.
Group	Specifies the IP address of the multicast group.
VRF	Specifies the VRF.
BMAC	Specifies the backbone MAC address.
B-VLAN	Specifies the backbone VLAN.
I-SID	Specifies the service identifier.

l2 traceroute anycast-gw <1-15999999>

Trigger a Layer 2 traceroute, which acts like native traceroute. Enable Connectivity Fault Management (CFM) to debug Layer 2. It can also help you debug ARP problems by providing the ability to troubleshoot next hop ARP records.

Syntax

- **l2 traceroute anycast-gw <1-15999999> [priority <0-7>] [source-mode <nodal | smltVirtual>] [ttl-value <1-255>]**

Command Parameters

anycast-gw <1-15999999>

Specifies the Anycast IP Gateway service instance identifier (I-SID).

priority <0-7>

Specifies the priority. The default is 7.

source-mode <nodal|smltVirtual>

Specifies the source mode of nodal or smltVirtual. Nodal MPs provide both MEP and MIP functionality for SPBM deployments. Nodal MPs are associated with a B-VLAN and are VLAN encapsulated packets. The switch supports SMLT interaction with SPBM. The platform uses two B-VIDs into the core from each pair of SMLT terminating nodes. Both nodes advertise the Nodal BMAC into the core on both B-VIDS. In addition each node advertises the SMLT virtual BMAC on one of the two B-VLANs. The default is nodal.

ttl-value <1-255>

Specifies the time-to-live (TTL) value. The default is 64.

Default

None

Command Mode

User EXEC

Usage Guidelines

If you use this command on a DvR Leaf node, the output only shows DvR Controller IP addresses if the IP address or host route specified is unknown in the DvR domain.

The *smltVirtual* parameter does not apply to 4220 Series or 5320 Series.

l2 traceroute ip-address

Trigger a Layer 2 traceroute, which acts like native traceroute. Enable Connectivity Fault Management (CFM) to debug Layer 2. It can also help you debug ARP problems by providing the ability to troubleshoot next hop ARP records.

Syntax

- **l2 traceroute ip-address WORD<0-255>**
- **l2 traceroute ip-address WORD<0-255> ttl-value <1-255>**
- **l2 traceroute ip-address WORD<0-255> vrf WORD<1-16>**

Command Parameters

ttl-value <1-255>

Specifies the time-to-live (TTL) value. The default is 64.

vrf WORD<1-16>

Specifies the VRF name.

WORD<0-255>

Specifies the IP address.

Default

None

Command Mode

User EXEC

Usage Guidelines

If you use this command on a DvR Leaf node, the output only shows DvR Controller IP addresses if the IP address or host route specified is unknown in the DvR domain.

l2 traceroute vlan

Trigger a Layer 2 traceroute, which acts like native traceroute. Enable Connectivity Fault Management (CFM) to debug Layer 2. It can also help you debug ARP problems by providing the ability to troubleshoot next hop ARP records.

Syntax

- **l2 traceroute {<vlan <1-4059> routernodename WORD<0-255> | <vlan <1-4059> mac <0x00:0x00:0x00:0x00:0x00:0x00>} [priority <0-7>] [source-mode <nodal|smltVirtual>] [ttl <1-255>]**

Command Parameters

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

mac <0x00:0x00:0x00:0x00:0x00:0x00>

Specifies the MAC address.

priority <0-7>

Specifies the priority. The default is 7.

source-mode <nodal|smltVirtual>

Specifies the source mode of nodal or smltVirtual. Nodal MPs provide both MEP and MIP functionality for SPBM deployments. Nodal MPs are associated with a B-VLAN and are VLAN encapsulated packets. The switch supports SMLT interaction with SPBM. The platform uses two B-VIDs into the core from each pair of SMLT terminating nodes. Both nodes advertise the Nodal BMAC into the core on both B-VIDS. In addition each node advertises the SMLT virtual BMAC on one of the two B-VLANs. The default is nodal.

routernodename WORD<0-255>

Specifies the router node name.

ttl-value <1-255>

Specifies the time-to-live (TTL) value. The default is 64.

Default

None

Command Mode

User EXEC

Usage Guidelines

The *source-mode smltVirtual* parameter does not apply to 4220 Series or 5320 Series.

l2 tracetree

Trigger a Layer 2 tracetree. Layer 2 tracetree allows a user to trigger a multicast linktrace message (LTM) by specifying the Backbone VLAN (B-VLAN) and service instance identifier (I-SID). The command allows the user to view a multicast tree on the SPBM B-VLAN from the source node to the destination nodes for a particular I-SID.

Syntax

- **l2 tracetree <1-4059> <1-16777215>**
- **l2 tracetree <1-4059> <1-16777215> mac 0x00:0x00:0x00:0x00:0x00:0x00**
- **l2 tracetree <1-4059> <1-16777215> mac 0x00:0x00:0x00:0x00:0x00:0x00 priority <0-7>**
- **l2 tracetree <1-4059> <1-16777215> priority <0-7>**
- **l2 tracetree <1-4059> <1-16777215> routernodename WORD<0-255>**
- **l2 tracetree <1-4059> <1-16777215> routernodename WORD<0-255> priority <0-7>**
- **l2 tracetree <1-4059> <1-16777215> routernodename WORD<0-255> source-mode nodal ttl-value <1-255>**
- **l2 tracetree <1-4059> <1-16777215> routernodename WORD<0-255> source-mode smltVirtual ttl-value <1-255>**
- **l2 tracetree <1-4059> <1-16777215> routernodename WORD<0-255> ttl-value <1-255>**
- **l2 tracetree <1-4059> <1-16777215> source-mode nodal ttl-value <1-255>**
- **l2 tracetree <1-4059> <1-16777215> source-mode smltVirtual ttl-value <1-255>**
- **l2 tracetree <1-4059> <1-16777215> ttl-value <1-255>**

Command Parameters

<1-16777215>

Specifies the service instance identifier (I-SID).

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot

configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

mac <0x00:0x00:0x00:0x00:0x00:0x00>

Specifies the MAC address.

priority <0-7>

Specifies the priority value. The default is 7.

routernodename WORD<0-255>

Specifies the router node name.

source-mode nodal

Specifies the source mode of nodal. The default is nodal.

source-mode smltVirtual

Specifies the source mode of smltVirtual. The default is nodal.

ttl-value <1-255>

Specifies the time-to-live (TTL) value. The default is 64.

Default

None

Command Mode

User EXEC

Usage Guidelines

The *source-mode smltVirtual* parameter is not supported on 4220 Series or 5320 Series.

l2 tracetree-fan

Trigger a Layer 2 tracetree-fan. Layer 2 tracetree-fan allows a user to trigger an LTM on the internal Fabric Area Network (FAN) I-SID.

Syntax

- **l2 tracetree-fan mac 0x00 : 0x00 : 0x00 : 0x00 : 0x00 : 0x00**
- **l2 tracetree-fan mac 0x00 : 0x00 : 0x00 : 0x00 : 0x00 : 0x00 priority <0-7>**
- **l2 tracetree-fan priority <0-7>**
- **l2 tracetree-fan routernodename WORD <0-255>**
- **l2 tracetree-fan routernodename WORD <0-255> priority <0-7>**

- **l2 tracetree-fan routernodename WORD <0-255> ttl-value <1-255>**
- **l2 tracetree-fan ttl-value <1-255>**

Command Parameters

mac <0x00:0x00:0x00:0x00:0x00:0x00>

Specifies the MAC address.

priority <0-7>

Specifies the priority value. The default is 7.

routernodename WORD<0-255>

Specifies the router node name.

ttl-value <1-255>

Specifies the time-to-live (TTL) value. The default is 64.

Default

None

Command Mode

User EXEC

line-card

Perform trace commands for input/output cards.

Syntax

- **line-card <1-4> trace grep WORD<0-1024>**
- **line-card <1-4> trace level <Module_ID> <0-4>**
- **line-card <1-4> trace level**
- **line-card <1-4> trace grep**

Command Parameters

<1-4>

Specifies the slot number. The number of slots supported depends on the hardware platform. For more information, see your hardware documentation.

grep <0-1024>

Greps the string in the range of 0 to 1024.

trace

Sets the trace level.

trace grep WORD<0-1024>

Greps the string in the range of 0 to 1024.

trace level *<Module_ID>* **<0-4>**

Sets the trace level.

<Module_ID> specifies the module for the trace. Different hardware platforms support different IDs because of feature support differences. For feature support information, see *Fabric Engine and VOSS Feature Matrix*. To see the list of module IDs, use the **show trace modid-list** command or CLI command completion Help.

<0-4> specifies the trace level.

Default

None

Command Mode

User EXEC

linktrace

Trigger a linktrace. The linktrace message is often compared to traceroute. A MEP transmits the Linktrace Message packet to a maintenance endpoint with intermediate points responding to indicate the path of the traffic within a domain for the purpose of fault isolation. The packet specifies the target MAC address of a MP, which is the SPBM system ID or the virtual SMLT MAC. MPs on the path to the target address respond with an LTR.

Syntax

- **linktrace WORD<0-22> WORD<0-22> <1-8191> <0x00:0x00:0x00:0x00:0x00:0x00> [detail] [priority <0-7>] [source-mode <nodal|smltVirtual>] [ttl-value <1-255>]**

Command Parameters

<0-22 | 1-22 >

Specifies the Maintenance domain name. The range depends on the hardware platform.

<0x00:0x00:0x00:0x00:0x00:0x00>

Specifies the remote MAC address to reach the MEP/MIP.

<1-8191>

Specifies the MEP ID.

detail

Displays linktrace result details.

priority <0-7>

Specifies the priority. The default is 7.

source-mode {nodal | smltVirtual}

Specifies the source mode as nodal or smltVirtual. The default is nodal.

ttl-value <1-255>

Specifies the time-to-live (TTL) value. The default is 64.

Default

None

Command Mode

User EXEC

Usage Guidelines

The *source-mode smltVirtual* parameter does not apply to 4220 Series or 5320 Series.

login

Login to a different user access level.

Syntax

- **login**

Default

None

Command Mode

User EXEC

logout

Ends the current session.

Syntax

- **logout**

Default

None

Command Mode

User EXEC

loopback

Trigger the loopback test. The LBM packet is often compared to ping. A MEP transmits the loopback message to an intermediate or endpoint within a domain for the purpose of fault verification. This can be used to check the ability of the network to forward different sized frames.

Syntax

- **loopback WORD<0-22> WORD<0-22> <1-8191> <0x00:0x00:0x00:0x00:0x00:0x00> [burst-count <1-200>] [data-tlv-size <0-400>] [frame-size <64-1500>] [interframe-interval <msecs>] [priority <0-7>] [source-mode{nodal|smltVirtual}] [testfill-pattern <all-zero|all-zero-crc|pseudo-random-bit-sequence|pseudo-random-bit-sequence-crc>] [time-out <1-10>]**

Command Parameters

<0x00:0x00:0x00:0x00:0x00:0x00>

Specifies the remote MAC address to reach the MEP/MIP.

<1-8191>

Specifies the MEP ID.

burst-count <1-200>

Specifies the burst count.

data-tlv-size <0-400>

Specifies the data Type-Length-Value (TLV) size.

frame-size <64-1500>

Specifies the frame size. The default is 0.

interframe-interval <0-1000>

Specifies the interval between LBM frames in msecs. A value of 0 msecs indicates to send the frames as fast as possible. The default is 500.

priority <0-7>

Specifies the priority. The default is 7.

source-mode {nodal | smltVirtual}

Specifies the source mode as nodal or smltVirtual. The default is nodal.

test-fill-pattern {all-zero|all-zero-crc|pseudo-random-bit-sequence|pseudo-random-bit-sequence-crc}

Specifies the testfill pattern: all-zero: null signal without cyclic redundancy check; all-zero-crc: null signal with cyclic redundancy check with 32-bit polynomial; pseudo-random-bit-sequence: PRBS without cyclic redundancy

check; or pseudo-random-bit-sequence-crc: pseudo-random-bit-sequence with cyclic redundancy check with 32-bit polynomial. A cyclic redundancy check is a code that detects errors. The default is 1:all-zero.

time-out <1-10>

Specifies the time-out interval in seconds. The default is 3.

WORD<1-22> WORD<1-22>

The first parameter, specifies the Maintenance domain name. The second parameter, specifies the Maintenance association name.

Default

None

Command Mode

User EXEC

Usage Guidelines

The *source-mode smltVirtual* parameter does not apply to 4220 Series or 5320 Series.

ls

Lists files in a directory.

Syntax

- **ls**
- **ls -r**
- **ls WORD<1-99>**

Command Parameters

-r

Recurse into directories.

WORD<1-99>

Specify the directory path name.

Default

None

Command Mode

User EXEC

manualtrigger ip rip interface

Sends a triggered update.

Syntax

- **manualtrigger ip rip interface vlan <1-4059>**

Command Parameters

vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

User EXEC

ping

Ping a device to test the connection between the switch and another network device. After you ping a device, the switch sends an Internet Control Message Protocol (ICMP) packet to the target device. If the device receives the packet, it sends a ping reply. After the switch receives the reply, displays a message that indicates traffic can reach the specified IP address. If the switch does not receive a reply, the message indicates the address is not responding.

Syntax

Note
Command parameters for **ping** vary depending on the parameter input order. All syntax possibilities are not listed. Use the CLI help to verify the syntax for available parameters during command contextual input.

- **ping WORD<0-256>**
- **ping WORD<0-256> count <1-9999>**
- **ping WORD<0-256> count <1-9999> mgmt [clip | oob | vlan]**

- **ping WORD<0-256> -d**
- **ping WORD<0-256> datasize <28-51200>**
- **ping WORD<0-256> datasize <28-51200> mgmt [clip | oob | vlan]**
- **ping WORD<0-256> grt**
- **ping WORD<0-256> grt interface gigabitEthernet {slot/port[sub-port]}**
- **ping WORD<0-256> grt interface tunnel <1-2000>**
- **ping WORD<0-256> grt interface vlan <1-4059>**
- **ping WORD<0-256> grt source WORD<1-256>**
- **ping WORD<0-256> -I <1-60>**
- **ping WORD<0-256> interface gigabitEthernet {slot/port[sub-port]}**
- **ping WORD<0-256> interface tunnel <1-2000>**
- **ping WORD<0-256> interface vlan <1-4059>**
- **ping WORD<0-256> mgmt [clip | oob | vlan]**
- **ping WORD<0-256> -s**
- **ping WORD<0-256> -s mgmt [clip | oob | vlan]**
- **ping WORD<0-256> scopeid <1-9999>**
- **ping WORD<0-256> service-probe**
- **ping WORD<0-256> source WORD<1-256>**
- **ping WORD<0-256> -t <1-120>**
- **ping WORD<0-256> -t <1-120> mgmt [clip | oob | vlan]**
- **ping WORD<0-256> vrf WORD<1-16>**
- **ping WORD<0-256> vrf WORD<1-16> interface gigabitEthernet {slot/port[sub-port]}**
- **ping WORD<0-256> vrf WORD<1-16> interface tunnel <1-2000>**
- **ping WORD<0-256> vrf WORD<1-16> interface vlan <1-4059>**
- **ping WORD<0-256> vrf WORD<1-16> source WORD<0-256>**

Command Parameters

count <1-9999>

Specifies the number of times to ping(for IPV4/IPV6).

-d

Configures the ping debug mode. This variable detects local software failures (ping related threads creation or write to sending socket) and receiving issues (ICMP packet too short or wrong ICMP packet type) (for IPV4/IPV6).

datasize <28-51200>

Specifies the size of ping data sent in bytes. The datasize for IPv4 addresses is <28-9216>. The datasize for IPv6 addresses is <28-51200>. The default is 0.

grt

Specifies the ping is executed in Global Router (GRT) context.

-I <1-60>

Specifies the interval between transmissions (for IPV4/IPV6).

interface gigabitEthernet {slot/port[sub-port]} | tunnel <1-2000> | vlan <1-4059>

Specifies a specific outgoing interface to use by IP address. {slot/port[sub-port]} identifies a single slot and port. If your platform supports channelization, you must also specify the subport in the format slot/port/sub-port.

tunnel: Specifies the tunnel interface.

vlan: Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. If you enable VRF scaling and SPBM mode, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

mgmt

Ping a network connection using a zero source IP address and route lookup in the main table.

mgmt clip

Ping a network connection using a Segmented Management Instance. If you do not use the mgmt parameter, the ping command uses the IP routing stack to initiate the ping request.

mgmt oob

Ping a network connection using a Segmented Management Instance. If you do not use the mgmt parameter, the ping command uses the IP routing stack to initiate the ping request.

mgmt vlan

Ping a network connection using a Segmented Management Instance. If you do not use the mgmt parameter, the ping command uses the IP routing stack to initiate the ping request.

-s

Configures the continuous ping at the interval rate defined by the [-I] parameter (for IPV4/IPV6).

scopeid <1-9999>

Specifies the scope ID. <1-9999> specifies the circuit ID for IPv6.

service-probe

Launches a ping request from the configured Network Service Probe interface.

source WORD<1-256>

Specifies an IP address that will be used as the source IP address in the packet header.

-t <1-120>

Specifies the no-answer timeout value in seconds (1-120) (for IPV4/IPV6).

vrf WORD<1-16>

Specifies the virtual routing and forwarding (VRF) name.

WORD <0-256>

Specifies the host name or IPv4 (a.b.c.d) or IPv6 (x:x:x:x:x:x:x:x) address (string length 0-256). Specifies the address to ping.

Default

None

Command Mode

User EXEC

Usage Guidelines

The *-d*, *-I*, *interface*, *scopeid*, *source*, and *vrf* parameters are not available if you specify the *mgmt* keyword.

The *mgmt oob* parameter only applies to hardware with a dedicated physical management interface.

pwc

Prints the current working level.

Syntax

- **pwc**

Default

None

Command Mode

User EXEC

quick-config-mgmt

Runs the management interface setup utility to quickly configure an OOB or VLAN Segmented Management Instance.

Syntax

- **quick-config-mgmt**

Default

None

Command Mode

User Exec

remove

Remove files or directories to free space.

Syntax

- **remove WORD<1-255>**
- **remove WORD<1-255> -y**

Command Parameters

WORD<1-255>

Specifies the file to rename.

WORD<1-255> -y

Skips the confirm question.

Default

None

Command Mode

User EXEC

show alarm database

Show the contents of alarm-log buffers.

Syntax

- **show alarm database [alarm-id WORD<0-32>] [alarm-status WORD<0-32>] [alarm-type WORD<0-32>] [event-code <0x0-0x00FFFFFF | 0x0-0x0>] [module WORD<0-100>] [severity WORD<0-25>]**

Command Parameters

alarm-id WORD<0-32>

Filters by alarm ID.

alarm-status WORD<0-32>

Filters by alarm status.

alarm-type WORD<0-32>

Filters by the type of alarm.

event-code <0x0-0x00FFFFFF | 0x0-0x0>

Filters by the event code.

module WORD<0-100>

Filters by module.

severity WORD<0-25>

Filters by severity.

Default

None

Command Mode

User EXEC

Example

The following example displays the local alarms.

```
Switch:1>show alarm database
       ALARM         EVENT          ALARM       ALARM                          CREATION
UPDATED         CLEARED
SLOT   ID            CODE           TYPE        STATUS        SEVERITY  FREQ   TIME
TIME            TIME        REASON
-------------------------------------------------------------------------------------------------------------
--------------------
CP1  00300001.238    0x0000c5e7    DYNAMIC       SET          INFO       1      [11/17/15
06:42:55.928]  [11/17/15 06:42:55.928]  [--/--/-- --:--:--.---]  Link Down(1/47)
CP1  00300001.239    0x0000c5e7    DYNAMIC       SET          INFO       1      [11/17/15
06:42:55.946]  [11/17/15 06:42:55.946]  [--/--/-- --:--:--.---]  Link Down(1/48)
CP1  00300001.241    0x0000c5e7    DYNAMIC       SET          INFO       1      [11/17/15
06:42:55.971]  [11/17/15 06:42:55.971]  [--/--/-- --:--:--.---]  Link Down(1/50)
CP1  00400005        0x000045e5    DYNAMIC       SET          INFO       1      [11/17/15
06:43:41.929]  [11/17/15 06:43:41.929]  [--/--/-- --:--:--.---]  Sending Cold-Start Trap
```

show alarm statistics

Show the statistics of alarm-log buffers

Syntax

- **show alarm statistics**

Default

None

Command Mode

User EXEC

show application auto-provision

Display auto-provisioning status on the switch.

Syntax

- **show application auto-provision**

Default

None

Command Mode

User Exec

Example

The following example displays the auto-provision configuration and operational status:

```
Switch:1>show application auto-provision
================================================================================
                               Auto-provision Info
================================================================================
Operational Status       : Complete
Configured Server Address: extremecontrol
extremecontrol IP Address: 192.0.2.34
Last successful sync     : Mon Sep 16 19:21:29 2024 EEST
```

show application iqagent

Show ExtremeCloud IQ Agent configuration information and status.

Syntax

- **show application iqagent**

Default

None

Command Mode

User EXEC

Command Output

The **show application iqagent** command displays the following information:

Output field	Description
Agent Admin State	Specifies the administrative state of the IQ Agent.
Agent Version	Specifies the IQ Agent version that runs on the device.
Agent Oper State	Specifies the operational status of the IQ Agent, whether IQ Agent is connected to ExtremeCloud IQ.
Server Address	Specifies the default ExtremeCloud IQ server.
Server Address Origin	Specifies the origin of the server IP address. • None - displays the default value (hac.extremecloudiq.com) or 0.0.0.0 • Configured - displays the static server IP address configured using CLI or EDM. • DHCP - displays the dynamic server IP address configured by the DHCP server.
Proxy Address	Specifies the proxy address.
Proxy TCP Port	Specifies the proxy TCP port.
Proxy Username	Specifies the proxy server user name.
Proxy Password	Specifies the proxy server password.

Example

The following example displays the ExtremeCloud IQ Agent configuration.

```
Switch:1>show application iqagent

================================================================================
                                IQAgent Info
================================================================================
Agent Admin State       : true
Agent Version           : 0.2.7
Agent Oper State        : connected
Server Address          : hac.extremecloudiq.com
Server Address Origin   : None
Proxy Address           : extremeiq.com
Proxy TCP Port          : 21
Proxy Username          : admin
```

show application iqagent status

Show ExtremeCloud IQ Agent status information.

Syntax

- **show application iqagent status**

Default

None

Command Mode

User EXEC

Command Output

The **show application iqagent status** command displays the following information:

Output	Description
Connection Status	Shows if ExtremeCloud IQ and IQ Agent are connected. Different fields appear in the **show application iqagent status** output, depending on the connection status. If IQ Agent is disabled, the connection status also displays as Disconnected.
Last Onboard Time	Shows the Last Onboard Time for the feature.
Agent Version	Shows the IQ Agent version running on the device.
Association URL	Shows the Association URL of the feature.
Poll URL	Shows the poll URL of the feature.
Monitor Frequency	Shows the monitor frequency of the feature.
Poll Frequency	Shows the poll frequency of the feature.
Last Poll Status	Shows the last poll status of the feature.
Last Poll Success Time	Shows the last poll success time of the feature.
Last Health Status	Shows the last health status of the feature.
Last Health Success Time	Shows the last health success time of the feature.
Last Monitor Status	Shows the last monitor status of the feature.

Output	Description
Last Monitor Success Time	Shows the last monitor success time of the feature.
Time Disconnected	Shows when IQ Agent disconnected from ExtremeCloud IQ. This status is not valid unless IQ Agent is enabled and in a disconnected state.
Association Frequency	Shows the frequency at which IQ Agent attempts to associate with ExtremeCloud IQ. Fast mode indicates an attempt every 40 seconds. Slow mode indicates an attempt every hour. For the first 24 hours of disconnection, the mode is Fast mode. The mode then changes to slow and remains in slow mode until successfully connected. This status is not valid unless IQ Agent is enabled and in a disconnected state. When you first onboard a device to ExtremeCloud IQ, it does not connect to the device immediately; it waits until the device attempts association again, which can take up to 1 hour.
Previous Association Attempt	Shows the last time IQ Agent attempted to associate with ExtremeCloud IQ. This status is not valid unless IQ Agent is enabled and in a disconnected state.
Next Association Attempt	Shows the next time IQ Agent will attempt to associate with ExtremeCloud IQ. This field displays `In progress` if IQ Agent is currently attempting to associate. This status is not valid unless IQ Agent is enabled and in a disconnected state.

Examples

The following output shows an example of an IQ Agent that is enabled with a successful connection to ExtremeCloud IQ.

```
Switch:1>show application iqagent status
================================================================================
                                IQAgent Status
================================================================================
Connection Status               : Connected
Last Onboard Time               : 18:54:23 11 27 2019 UTC
Agent Version                   : 0.2.7
Association URL                 : https://10.16.231.98/hac-webapp/rest/v1/association
Poll URL                        : https://10.16.231.98/hac-webapp/rest/v1/poll/1904Q-20028
Monitor Frequency               : 600
Poll Frequency                  : 30
Last Poll Status                : SUCCESS
Last Poll Success Time          : 14:39:16 11 28 2019 UTC
Last Health Status              : SUCCESS
```

```
Last Health Success Time        : 14:38:35 11 28 2019 UTC
Last Monitor Status             : SUCCESS
Last Monitor Success Time       : 14:38:35 11 28 2019 UTC
```

The following output shows an example of an IQ Agent that is enabled but not connected to ExtremeCloud IQ.

```
Switch:1>show application iqagent status
================================================================================
                                IQAgent Status
================================================================================
Connection Status                : Disconnected
Time Disconnected                : 19:22:33 08 25 2022 UTC
Association Frequency            : Slow
Previous Association Attempt     : 19:04:06 08 29 2022 UTC
Next Association Attempt         : 20:04:43 08 29 2022 UTC
```

show application openapi

Displays operational information for OpenAPI, which ExtremeCloud IQ uses for feature configuration on the switch.

Syntax

- **show application openapi**

Default

None

Command Mode

User EXEC

Command Output

The **show application openapi** command displays the following information:

Output field	Description
Server State	Displays the state of connectivity with the Cloud.
Server State Local Port	Displays the Cloud server local port status.
Local Port State	Displays the local port state.
Local TCP Port	Displays the local port number.
TLS	Displays the state of secure communication for local port access.
TLS version	Displays the iteration of the Transport Layer Security (TLS) protocol.
TTL(in seconds)	Displays the time to live value.

Output field	Description
Server Version	Displays the OpenAPI version on the server.
Specification Version	Displays the specification version.

The following example displays the operational status of the local port access on the switch:

```
Switch:1>show application openapi
================================================================================
                                  OpenAPI Info
================================================================================
Server State                    : Enabled
Server State Local Port         : Disabled
Local Port State                : Disabled
Local TCP Port                  : 9443
TLS                             : Enabled
TLS version                     : 1.2
TTL(in seconds)                 : 60
Server Version                  : 0.1.10.3
Specification Version           :
```

show application openapi log

Displays OpenAPI server log file information such as the type of request, the IP address of the requester, and the URL string.

Syntax

show application openapi log [action WORD<1-7>] [reverse] [source WORD<1-64>] [url <WORD<1-128>]

Command Parameters

action *WORD<1-7>*

Filters the OpenAPI log based on the action type:

- POST
- PATCH
- GET
- PUT
- DELETE

reverse

Displays the OpenAPI log entries in chronological order.

source *WORD<1-64>*

Filters the OpenAPI log based on the application that initiated the request.

url *<WORD<1-128>]*

Filters the OpenAPI log based on the endpoint URL.

Default

None

Command Mode

User EXEC

Example

The following example output displays last few lines of the OpenAPI log:

```
Switch:1(config-app)#show application openapi log | tail
2025-10-07 06:05:22,176:INFO:voss-openapi:__main__.py:main:81:: [1|1] Starting openapi
webserver version 0.1.11.2
2025-10-07 07:25:29,803:INFO:voss-openapi:__main__.py:main:39:: [1|1] Starting voss-
openapi application
2025-10-07 07:25:32,996:INFO:voss-openapi:__main__.py:main:81:: [1|1] Starting openapi
webserver version 0.1.11.2
2025-10-08 06:22:28,263:INFO:voss-openapi:__main__.py:main:39:: [1|1] Starting voss-
openapi application
2025-10-08 06:22:30,943:INFO:voss-openapi:__main__.py:main:81:: [1|1] Starting openapi
webserver version 0.1.11.2
2025-10-08 12:40:28,025:INFO:voss-openapi:__main__.py:main:39:: [1|1] Starting voss-
openapi application
2025-10-08 12:40:31,011:INFO:voss-openapi:__main__.py:main:81:: [1|1] Starting openapi
webserver version 0.1.11.2
2025-10-09 06:35:06,360:INFO:voss-openapi:__main__.py:main:39:: [1|1] Starting voss-
openapi application
2025-10-09 06:35:09,039:INFO:voss-openapi:__main__.py:main:81:: [1|1] Starting openapi
webserver version 0.1.11.2
```

show application restconf

Show the RESTCONF configuration and operation status.

Syntax

- **show application restconf**

Default

None

Command Mode

User EXEC

Command Output

The **show application restconf** command displays the following information:

Output field	Description
Admin State	Specifies the administrative state of the RESTCONF application.
TCP Port	Specifies the TCP port for the RESTCONF server.
Certificate File Status	Specifies the status of TLS/SSL certificate file whether it is installed or uninstalled.
TLS Enable	Specifies whether TLS/SSL is enabled or disabled for the RESTCONF server.
Trap Notification	Specifies whether trap notification is enabled or disabled when the RESTCONF server is not available.
Oper State	Specifies the operational status of the RESTCONF server.
Web Server Version	Specifies the RESTCONF web server version that is running on the device.
RESTCONF Server Version	Specifies the RESTCONF server version that is running on the device.

Example

The following example displays the RESTCONF configuration.

```
Switch:1>show application restconf
================================================================================
                                    RESTCONF Info
================================================================================
Admin State             : true
TCP Port                : 8080
Certificate File Status : install
TLS Enable              : false
Trap Notification       : true
Oper State              : up
Web Server Version      : 1.0.1.11
RESTCONF Server Version : 1.0.1.39
================================================================================
```

show application restconf conflict-ifname

Show conflicting interface name information. To enable RESTCONF, the interface name (VLAN name, MLT name, and Port interface name) must be unique.

Syntax

- **show application restconf conflict-ifname**

Default

None

Command Mode

User EXEC

Example

The following example displays the RESTCONF conflicting interface name information.

```
Switch:1>show application restconf conflict-ifname
-------------------------------------------------------------------------------------------
 Conflicting Interface IfName - Port, VLAN Name and MLT Name
-------------------------------------------------------------------------------------------
 Mlt 1 name is same as Vlan 1001 name - "Interface-1"
 Mlt 2 name is same as Vlan 1002 name - "VLAN-1002"
 Vlan 1003 name is Mlt 1 Default Name - "MLT-1"
-------------------------------------------------------------------------------------------
Total Conflict Count: 3
```

show application restconf invalid-name

Show VLAN or MLT names that contain prohibited special characters. To enable RESTCONF, VLAN and MLT names cannot contain special characters other than underscore (_), en dash (-), or colon (:).

Syntax

- **show application restconf invalid-name mlt**
- **show application restconf invalid-name vlan**

Command Parameters

mlt

Lists all MLT names that contain special characters.

vlan

Lists all VLAN names that contain special characters.

Default

None

Command Mode

User EXEC

Example

The following example displays the RESTCONF MLT names that contain prohibited special characters.

```
Switch:1>show application restconf invalid-name mlt
-------------------------------------------------------------------------------------------
```

```
 Invalid MLT names - Only "-",  "_" and ":" special characters are allowed
-------------------------------------------------------------------------------------------
 Mlt 3 name has special characters - "gigi#g"
 Mlt 4 name has special characters - "my%mlt"
 Mlt 5 name has special characters - "isa.text"
-------------------------------------------------------------------------------------------
Total Invalid Names Count: 3
```

show app-telemetry counter

Displays the Application Telemetry status counters.

Syntax

- **show app-telemetry counter**
- **show app-telemetry counter id <number>**
- **show app-telemetry counter name <rule>**

Command Parameters

id <1-2000>

Specifies the rule ID number.

id <1-2000>

Shows the counters for the specified rule number.

name WORD<1-32>

Specifies the name of the rule.

name WORD<1-32>

Shows the counters for the specified rule name.

Default

None

Command Mode

User EXEC

Command Output

The **show app-telemetry counter** command displays the following information:

Output field	Description
EntryId	Displays the Application Telemetry rule ID.
Name	Displays the rule name.

Output field	Description
Packets	Displays the number of packets transmitted to the Analytics Engine that matched the specified pattern in the rule.
Bytes	Displays the total number of bytes in the packets.

Example

The following example displays the Application Telemetry counters.

```
Switch:1>show app—telemetry counter

=================================================================
              Application Telemetry Counters
=================================================================
EntryId        Name        Packets        Bytes
-----------------------------------------------------------------
1            ssh         1258           72145
2            sslclient      457            27000
-----------------------------------------------------------------

All 2 out of 2 Total Num of Application Telemetry counters entries displayed
```

show app-telemetry status

Displays whether Application Telemetry is enabled or disabled and whether or not the collector is reachable.

Syntax

- **show app-telemetry status**

Default

None

Command Mode

User EXEC

show auto-sense

Displays the Auto-sense configuration on the switch.

Syntax

- **show auto-sense**

Default

None.

Command Mode

User EXEC

show auto-sense access-diffserv

Displays the Auto-sense configuration related to Differentiated Services (DiffServ).

Syntax

- **show auto-sense access-diffserv**

Default

None.

Command Mode

User EXEC

Command Output

The **show auto-sense access-diffserv** command displays the following information:

Output field	Description
ACCESS-DIFFSERV ENABLE	Displays the global DiffServ status.

Example

The following example displays the command output.

```
Switch:1>show auto-sense access-diffserv

================================================================================================
                                  AUTO-SENSE GLOBAL Config
================================================================================================
ACCESS-DIFFSERV
ENABLE
------------------------------------------------------------------------------------------------
TRUE
------------------------------------------------------------------------------------------------


------------------------------------------------------------------------------------------------
 0 out of 0 Total Num of AUTO-SENSE entries displayed
------------------------------------------------------------------------------------------------
```

show auto-sense auto-mlt

Displays the Auto-sense configuration related to automatic link aggregation (Auto-MLT) on NNI ports.

Syntax

- **show auto-sense auto-mlt**

Default

None

Command Mode

User EXEC

Command Output

The **show auto-sense auto-mlt** command displays the following information:

Output field	Description
ENABLED	Displays if this feature is enabled.

Example

The following example displays the command output on a switch with the feature enabled.

```
Switch:1>show auto-sense auto-mlt
================================================================================================
                                          AUTO-MLT
================================================================================================
ENABLED
------------------------------------------------------------------------------------------------
TRUE
------------------------------------------------------------------------------------------------


------------------------------------------------------------------------------------------------
 0 out of 0 Total Num of AUTO-SENSE entries displayed
------------------------------------------------------------------------------------------------
```

show auto-sense data

Displays the Auto-sense configuration related to data traffic.

Syntax

- **show auto-sense data**

Default

None.

Command Mode

User EXEC

Command Output

The **show auto-sense data** command displays the following information:

Output field	Description
I-SID	Displays the I-SID associated with data traffic.
VLANID	Displays the VLAN ID associated with data traffic.

Example

The following example displays command output.

```
Switch:1>show auto-sense data
================================================================================================
                                    AUTO-SENSE DATA Config
================================================================================================
I-SID           VLANID
------------------------------------------------------------------------------------------------
2               2
------------------------------------------------------------------------------------------------

------------------------------------------------------------------------------------------------
 0 out of 0 Total Num of AUTO-SENSE entries displayed
------------------------------------------------------------------------------------------------
```

show auto-sense dhcp-detection

Displays the Auto-sense configuration related to DHCP server auto-detection.

Syntax

- **show auto-sense dhcp-detection**

Default

None.

Command Mode

User EXEC

Command Output

The **show auto-sense dhcp-detection** command displays the following information:

Output field	Description
ENABLED	Displays the status of DHCP detection.
MAC ADDRESS	Displays the MAC address associated with the DHCP server IP address.
PORT	Displays the port that learns the MAC address.

Example

The following example displays command output.

```
Switch:1>show auto-sense dhcp-detection
================================================================================================
                                DHCP SERVER AUTO-DETECTION
================================================================================================
ENABLED    MAC ADDRESS                    PORT
------------------------------------------------------------------------------------------------
TRUE
------------------------------------------------------------------------------------------------
00:26:55:dc:96:19              1/1
------------------------------------------------------------------------------------------------
 0 out of 0 Total Num of AUTO-SENSE entries displayed
------------------------------------------------------------------------------------------------
```

show auto-sense eapol

Displays the Auto-sense configuration related to Link Layer Discovery Protocol (LLDP) authentication for Extensible Authentication Protocol over LAN (EAPoL or EAP).

Syntax

- **show auto-sense eapol**

Default

None.

Command Mode

User EXEC

Command Output

The **show auto-sense eapol** command displays the following information:

Output field	Description
TYPE	Displays the type of FA client.
EAPOL STATUS	Displays the status of EAPoL authentication.
I-SID	Displays the I-SID for the FA client type.
VLANID	Displays the VLAN ID for the FA client type.
C-VID	Displays the customer VLAN for the FA client type.
MGMT I-SID	Displays the management I-SID for the FA client type.
MGMT C-VID	Displays the management customer VLAN for the FA client type.
MAC-MAX	Displays the maximum EAP and NEAP MAC clients supported on Auto-sense-enabled ports.
EAP-MAC-MAX	Displays the maximum EAP clients allowed on the Auto-sense-enabled port at one time.
NEAP-MAC-MAX	Displays the maximum NEAP clients allowed on the Auto-sense-enabled port at one time.
LLDP-AUTH ENABLE	Displays if Link Layer Discovery Protocol (LLDP) authentication is enabled.

Example

The following example displays the command output.

```
Switch:1#show auto-sense eapol
================================================================================================
                            AUTO-SENSE FA Client specific config
================================================================================================
TYPE                   EAPOL STATUS    I-SID      VLANID  C-VID   MGMT I-SID MGMT C-VID
------------------------------------------------------------------------------------------------
camera                 Auto            -          -       -       -          -
wap-type1              Auto            -          -       -       -          -
open-virtual-switch    Auto            -          -       -       -          -
proxy-no-auth          Auth            -          -       -       -          -
proxy                  Auth            -          -       -       -          -
proxy-ring             Auth            -          -       -       -          -
------------------------------------------------------------------------------------------------

================================================================================================
                             AUTO-SENSE EAPOL MULTIHOST Config
================================================================================================
MAC-MAX          EAP-MAC-MAX     NEAP-MAC-MAX
------------------------------------------------------------------------------------------------
4                4               4

------------------------------------------------------------------------------------------------

================================================================================================
                                  AUTO-SENSE GLOBAL Config
================================================================================================
LLDP-AUTH
```

```
ENABLE
-------------------------------------------------------------------------------------------
FALSE
-------------------------------------------------------------------------------------------

-------------------------------------------------------------------------------------------
 7 out of 7 Total Num of AUTO-SENSE entries displayed
-------------------------------------------------------------------------------------------
```

show auto-sense fa

Displays the Auto-sense configuration related to Fabric Attach (FA) message authentication and FA client-specific configuration.

Syntax

- **show auto-sense fa**

Default

None

Command Mode

User EXEC

Command Output

The **show auto-sense fa** command displays the following information:

Output field	Description
MSG-AUTH	Displays the status of FA message authentication.
MSG-AUTH-KEY	Displays if an FA authentication key is configured; the key value itself is obfuscated with asterisks (*).
PROXY-FORCE-AUTH	Displays if Auto-sense forces FA authentication for devices that attach to ports in the FA PROXY NOAUTH port state.
TYPE	Displays the type of FA client.
EAPOL STATUS	Displays the status of EAPoL authentication.
I-SID	Displays the I-SID for the FA client type.
VLANID	Displays the VLAN ID for the FA client type.
C-VID	Displays the customer VLAN for the FA client type.
MGMT I-SID	Displays the management I-SID for the FA client type.
MGMT C-VID	Displays the management customer VLAN for the FA client type.

Example

The following example displays the Auto-sense configuration for Fabric Attach and FA clients:

```
Switch:1>show auto-sense fa
================================================================================
                                  AUTO-SENSE FA Config
================================================================================
MSG-AUTH                       MSG-AUTH-KEY           PROXY-FORCE-AUTH
--------------------------------------------------------------------------------
enabled                        ****                   disabled
--------------------------------------------------------------------------------

================================================================================
                           AUTO-SENSE FA Client specific config
================================================================================
TYPE                EAPOL STATUS    I-SID   VLANID  C-VID  MGMT I-SID MGMT C-VID
--------------------------------------------------------------------------------
camera              Auto            100     100    untag   -          -
wap-type1           Auto            200     200    untag   -          -
open-virtual-switch Auto            -       -      -       -          -
proxy-no-auth       Auth            300     300    untag   -          -
proxy               Auth            400     n/a    400     400        400
--------------------------------------------------------------------------------
 6 out of 6 Total Num of AUTO-SENSE entries displayed
--------------------------------------------------------------------------------
```

show auto-sense guest-isid

Displays the configuration related to the guest I-SID applied in Auto-sense mode.

Syntax

- **show auto-sense guest-isid**

Default

None

Command Mode

User EXEC

Example

The following example displays configuration related to the guest I-SID.

```
Switch:1#show auto-sense guest-isid

================================================================================================
                                        GUEST-ISID
================================================================================================
ENABLED
------------------------------------------------------------------------------------------------
TRUE
------------------------------------------------------------------------------------------------
```

```
--------------------------------------------------------------------------------------------
 0 out of 0 Total Num of AUTO-SENSE entries displayed
--------------------------------------------------------------------------------------------
```

show auto-sense isis

Displays the Auto-sense configuration related to Intermediate-System-to-Intermediate-System (IS-IS) authentication and information related to the L1 metric, such as a legend.

Syntax

- **show auto-sense isis**

Default

None.

Command Mode

User EXEC

Command Output

The **show auto-sense isis** command displays the following information:

Output field	Description
AUTH-TYPE	Displays the authentication type for IS-IS hello packets on Auto-sense ports.
AUTH-KEYID	Displays the key ID.
AUTH-KEY	Displays the authentication key used by the receiving router to verify the packet. The characters are obfuscated with an asterisk (*).
ISIS SPBM L1 METRIC	Displays the global IS-IS Level 1 metric for Auto-sense ports. The higher the value, the lower the cost for a route.
MSTP OVR	Displays if MSTP-Fabric Connect Multi Homing is overwritten by Auto-sense.

Example

The following example displays command output.

```
Switch:1>show auto-sense isis
============================================================================================
                                AUTO-SENSE ISIS AUTH Config
============================================================================================
AUTH-TYPE       AUTH-KEYID      AUTH-KEY
--------------------------------------------------------------------------------------------
hmac-sha-256    1               ****
--------------------------------------------------------------------------------------------
```

```
================================================================================================
                                  AUTO-SENSE GLOBAL Config
================================================================================================
ISIS SPBM  MSTP
L1 METRIC  OVR
------------------------------------------------------------------------------------------------
AUTO       N
------------------------------------------------------------------------------------------------


------------------------------------------------------------------------------------------------
 1 out of 1 Total Num of AUTO-SENSE entries displayed

------------------------------------------------------------------------------------------------
```

show auto-sense link-debounce

Displays the Link Debounce configuration on Auto-sense ports.

Syntax

- **show auto-sense link-debounce**

Default

None.

Command Mode

User EXEC

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine User Guide*.

Command Output

The **show auto-sense link-debounce** command displays the following information:

Output field	Description
TYPE	Displays if Link Debounce is on, off, or auto.
TIMEOUT	Displays the configured port timer, in milliseconds.

Example

The following example displays a Link Debounce configuration for Preboot Execution Environment (PXE) devices.

```
Switch:1>show auto-sense link-debounce
```

```
================================================================================================
                                        LINK-DEBOUNCE
================================================================================================
TYPE    TIMEOUT
------------------------------------------------------------------------------------------------
AUTO    3000
------------------------------------------------------------------------------------------------
```

show auto-sense onboarding

Displays the Auto-sense configuration related to the onboarding I-SID.

Syntax

- **show auto-sense onboarding**

Default

None.

Command Mode

User EXEC

Command Output

The **show auto-sense onboarding** command displays the following information:

Output field	Description
I-SID	Displays the onboarding I-SID.
VLANID	Displays the onboarding VLAN ID.

Example

The following example displays command output.

```
Switch:1>show auto-sense onboarding
================================================================================================
                                AUTO-SENSE ONBOARDING Config
================================================================================================
I-SID           VLANID
------------------------------------------------------------------------------------------------
15999999        4048
------------------------------------------------------------------------------------------------

------------------------------------------------------------------------------------------------
 1 out of 1 Total Num of AUTO-SENSE entries displayed
------------------------------------------------------------------------------------------------
```

show auto-sense qos

Displays the Auto-sense configuration related to overriding 802.1p bits.

Syntax

- **show auto-sense qos**

Default

None.

Command Mode

User EXEC

Command Output

The **show auto-sense qos** command displays the following information:

Output field	Description
802.1p OVERRIDE ENABLE	Displays if ports override incoming 802.1p bits on ports that operate in Auto-sense UNI or voice mode.

Example

The following example displays the command output.

```
Switch:1>show auto-sense qos
================================================================================
                                AUTO-SENSE GLOBAL Config
================================================================================
802.1p OVERRIDE
ENABLE
--------------------------------------------------------------------------------
TRUE
--------------------------------------------------------------------------------


--------------------------------------------------------------------------------
 0 out of 0 Total Num of AUTO-SENSE entries displayed
--------------------------------------------------------------------------------
```

show auto-sense sd-wan

Displays Auto-sense configuration related to ExtremeCloud SD-WAN.

Syntax

- **show auto-sense sd-wan**

Default

None.

Command Mode

User EXEC

Command Output

The **show auto-sense sd-wan** command displays the following information:

Output field	Description
SDWAN MULTI-AREA	Displays the global IS-IS area where all ExtremeCloud SD-WAN learned tunnels will be created. This column only displays for a switch with boundary-node abilities.
SDWAN VRF	Displays the VRF name that Auto-sense uses for the SD-WAN configuration.
DEST-IP	Displays the destination IP address of the SD-WAN logical interface. This column only displays for a switch with boundary-node abilities.
MULTI-AREA	Displays the IS-IS area where ExtremeCloud SD-WAN learned tunnels on this specific interface will be created. This column only displays for a switch with boundary-node abilities.

Example

The following example displays information related to ExtremeCloud SD-WAN.

```
Switch:1>show auto-sense sd-wan
================================================================================================
                                  AUTO-SENSE GLOBAL Config
================================================================================================
SDWAN       SDWAN
MULTI-AREA  VRF
------------------------------------------------------------------------------------------------
HOME
------------------------------------------------------------------------------------------------


================================================================================================
                  AUTO-SENSE SD-WAN Logical Interfaces Multi-Area Config
================================================================================================
DEST-IP            MULTI-AREA
------------------------------------------------------------------------------------------------
------------------------------------------------------------------------------------------------
10.10.10.10        REMOTE
20.20.20.20        HOME
30.30.30.30        REMOTE
------------------------------------------------------------------------------------------------
4 out of 4 Total Num of AUTO-SENSE entries displayed
------------------------------------------------------------------------------------------------
```

show auto-sense voice

Displays the Auto-sense configuration related to voice for IP phones.

Syntax

- **show auto-sense voice**

Default

None.

Command Mode

User EXEC

Command Output

The **show auto-sense voice** command displays the following information:

Output field	Description
TYPE	Displays the type of voice device.
LDDP-AUTH ENABLE	Displays if Link Layer Discovery Protocol (LLDP) authentication is enabled for IP phones.
I-SID	Displays the voice I-SID.
C-VID	Displays the customer VLAN ID for IP phones.
DSCP	Displays the DSCP value for the voice VLAN.
PRIORITY	Displays the priority value for the voice VLAN.

Example

The following example displays the Auto-sense configuration related to voice:

```
Switch:1>show auto-sense voice
================================================================================
                              AUTO-SENSE VOICE Config
================================================================================
TYPE   LDDP-AUTH ENABLE I-SID      C-VID      DSCP       PRIORITY
--------------------------------------------------------------------------------
phone  FALSE            2000       2000       46         6
--------------------------------------------------------------------------------
1 out of 1 Total Num of AUTO-SENSE entries displayed
--------------------------------------------------------------------------------
```

show auto-sense wait-interval

Displays the Auto-sense configuration related to the time to wait for an LLDP neighbor to be detected in the Auto-sense wait state before transitioning to the Auto-sense onboarding state.

Syntax

- **show auto-sense wait-interval**

Default

None.

Command Mode

User EXEC

Command Output

The **show auto-sense wait-interval** command displays the following information:

Output field	Description
WAIT INTERVAL	Displays the configured wait interval.

Example

The following example displays the wait interval information.

```
Switch:1>show auto-sense wait-interval
================================================================================
                                AUTO-SENSE GLOBAL Config
================================================================================
WAIT
INTERVAL
--------------------------------------------------------------------------------
50
--------------------------------------------------------------------------------

--------------------------------------------------------------------------------
0 out of 0 Total Num of AUTO-SENSE entries displayed
--------------------------------------------------------------------------------
```

show autotopology nmm-table

View topology message status to view the interconnections between Layer 2 devices in a network.

Syntax

- **show autotopology nmm-table**

Default

None

Command Mode

User EXEC

Command Output

The **show autotopology nmm-table** command displays the following information:

Output field	Description
Local Port	Specifies the slot and port that received the topology message.
IpAddress	Specifies the IP address of the sender of the topology message.
SegmentId	Specifies the segment identifier of the segment from which the remote agent sent the topology message. This value is extracted from the message.
MacAddress	Specifies the MAC address of the sender of the topology message.
ChassisType	Specifies the chassis type of the device that sent the topology message.
BT	Specifies the backplane type of the device that sent the topology message. The switch uses a backplane type of 12.
LS	Indicates if the sender of the topology message is on the same Ethernet segment as the reporting agent.
CS	Specifies the current state of the sender of the topology message. The choices are • topChanged—Topology information recently changed. • HtBt (heartbeat)—Topology information is unchanged. • new—The sending agent is in a new state.
Rem Port	Specifies the slot and port that sent the topology message.

Example

The following example displays the topology message status.

```
Switch:1>show autotopology nmm-table
================================================================================================
                                        Topology Table
================================================================================================
```

```
Local                                                                                  Rem
Port     IpAddress       SegmentId MacAddress   ChassisType            BT LS  CS     Port
---------------------------------------------------------------------------------------------
0/0      192.0.2.81     0x000000  0030ab707a00 ChassisType 1          12 Yes HtBt   0/0
1/1      192.0.2.81     0x000000  0050ea268800 ChassisType 2          12 Yes HtBt   1/12
1/24     192.0.2.81     0x000000  070ab307aa00 ChassisType 3          12 Yes HtBt   1/1
2/1      192.0.2.81     0x000000  0030ab57ab00 ChassisType 4          12 Yes HtBt   1/23
2/2      192.0.2.81     0x000000  0030ab307af0 ChassisType 5          12 Yes HtBt   1/12
```

show banner

Display the banner information.

Syntax

- **show banner**

Default

None

Command Mode

User EXEC

show basic config

Display the basic switch configuration.

Syntax

- **show basic config**

Default

None

Command Mode

User EXEC

Command Output

The **show basic config** command displays the following information:

Output field	Description
setdate	This field is currently not used.
mac-flap-time-limit	Displays the time limit for the loop-detect feature, in milliseconds, for MAC flapping.
auto-recover-delay	Displays the time interval, in seconds, after which autorecovery runs on ports to clear actions taken by CP Limit or link flap.

Example

The following example displays the basic switch configuration.

```
Switch:1#show basic config
                        setdate : N/A
           mac-flap-time-limit : 500
            auto-recover-delay : 30
```

show bgp ipv6 aggregates

Display BGP IPv6 aggregates information.

Syntax

- **show bgp ipv6 aggregates [WORD <1-256>] [vrf WORD<1-16>] [vrfids WORD<0-512>]**
- **show bgp ipv6 aggregates vrf WORD<1-16>**
- **show bgp ipv6 aggregates vrfids WORD<0-512>**
- **show bgp ipv6 aggregates WORD<1-256>**

Command Parameters

vrf <WORD 1-16>

Specifies the VRF name.

vrfids <WORD 0-512>

Specifies VRF IDs.

WORD <1-256>

Specifies the IPv6 prefix and length.

Default

None

Command Mode

User EXEC

show bgp ipv6 imported-routes

Display BGP IPv6 imported-routes information.

Syntax

- **show bgp ipv6 imported-routes [WORD <1-256>] [longer-prefixes] [vrf WORD<1-16>] [vrfids WORD<0-512>]**
- **show bgp ipv6 imported-routes WORD<1-256>**
- **show bgp ipv6 imported-routes WORD<1-256> longer-prefixes**

Command Parameters

longer-prefixes

Shows long prefixes. the longer-prefixes indicate the mask length from any specified prefix to 32 (for example show from prefix A.B.C.D/len to A.B.C.D/32.)

vrf <WORD 1-16>

Specifies the VRF name.

vrfids <WORD 0-512>

Specifies VRF IDs.

WORD <1-256>

Specifies the IPv6 prefix and length.

Default

None

Command Mode

User EXEC

show bgp ipv6 neighbors

Display BGP IPv6 neighbors.

Syntax

- **show bgp ipv6 neighbors WORD <1-256> vrf WORD<1-16>**
- **show bgp ipv6 neighbors WORD <1-256> vrf WORD<1-16> vrfids WORD<0-512>**
- **show bgp ipv6 neighbors WORD <1-256> vrfids WORD<0-512>**
- **show bgp ipv6 neighbors WORD<1-256> advertised-routes**

- **show bgp ipv6 neighbors WORD<1-256> advertised-routes WORD<1-256>**
- **show bgp ipv6 neighbors WORD<1-256> advertised-routes WORD<1-256> longer-prefixes**
- **show bgp ipv6 neighbors WORD<1-256> routes**
- **show bgp ipv6 neighbors WORD<1-256> routes community disable**
- **show bgp ipv6 neighbors WORD<1-256> routes community enable**
- **show bgp ipv6 neighbors WORD<1-256> routes WORD<1-256>**
- **show bgp ipv6 neighbors WORD<1-256> routes WORD<1-256> longer-prefixes**

Command Parameters

advertised-routes WORD<1-256>

Displays information about BGP peer advertised routes. The IPv6 address is optional.

community <disable | enable>

Enables the display of community attributes.

longer-prefixes

Shows long prefixes. The longer-prefixes indicate the mask length from any specified prefix to 32 (for example, show from prefix a.b.c.d/len to a.b.c.d/32).

routes WORD<1-256>

Displays information about BGP peer routes.

vrf <WORD 1-16>

Specifies the VRF name.

vrfids <WORD 0-512>

Specifies VRF IDs.

WORD<1-256>

Specifies the IPv4 or IPv6 address.

Default

None

Command Mode

User EXEC

show bgp ipv6 networks

Display information about BGP network configurations.

Syntax

- **show bgp ipv6 networks WORD <1-256> vrf WORD<1-16>**
- **show bgp ipv6 networks WORD <1-256> vrf WORD<1-16> vrfids WORD<0-512>**
- **show bgp ipv6 networks WORD <1-256> vrfids WORD<0-512>**
- **show bgp ipv6 networks WORD<1-256>**

Command Parameters

vrf <WORD 1-16>

Specifies the VRF name.

vrfids <WORD 0-512>

Specifies VRF IDs.

WORD <1-256>

Specifies IPv6 prefix and length in the range of 1 to 256

Default

None

Command Mode

User EXEC

show bgp ipv6 redistributed-routes

Display BGP IPv6 redistributed-routes information.

Syntax

- **show bgp ipv6 redistributed-routes vrf WORD<1-16>**
- **show bgp ipv6 redistributed-routes [vrf WORD<1-16>] [vrfids WORD<0-512>]**
- **show bgp ipv6 redistributed-routes vrfids WORD<0-512>**

Command Parameters

vrf <WORD 1-16>

Specifies the VRF name.

vrfids <WORD 0-512>

Specifies VRF IDs.

Default

None

Command Mode

User EXEC

show bgp ipv6 route

Display information about BGP IPv6 routes.

Syntax

- **show bgp ipv6 route vrfids WORD<0-512>**
- **show bgp ipv6 route community {disable|enable}**
- **show bgp ipv6 route ipv6 WORD<1-256>**
- **show bgp ipv6 route vrf WORD<1-16>**
- **show bgp ipv6 route vrf WORD<1-16> vrfids WORD<0-512>**
- **show bgp ipv6 route WORD <1-256>**
- **show bgp ipv6 route WORD<1-256> longer-prefixes**

Command Parameters

community {disable|enable}

Enables or disables the display of community attributes.

ipv6 WORD<1-256>

Specifies an IPv6 address.

longer-prefixes

Shows long prefixes. the longer-prefixes indicate the mask length from any specified prefix to 32 (for example show from prefix A.B.C.D/len to A.B.C.D/32.)

vrf <WORD 1-16>

Specifies the VRF name.

vrfids <WORD 0-512>

Specifies VRF IDs.

WORD <1-256>

Specifies IPv6 address and length in the range of 1 to 256

Default

None

Command Mode

User EXEC

show bgp ipv6 summary

Shows a summary of BGP peering over IPv6 transport.

Syntax

- **show bgp ipv6 summary vrf WORD<1-16>**
- **show bgp ipv6 summary vrf WORD<1-16> vrfids WORD<0-512>**
- **show bgp ipv6 summary vrfids WORD<0-512>**

Command Parameters

vrf <WORD 1-16>

Specifies the VRF name.

vrfids <WORD 0-512>

Specifies VRF IDs.

Default

None

Command Mode

User EXEC

show brouter

Show brouter port information.

Syntax

- **show brouter**

Default

None

Command Mode

User EXEC

show certificate ca

Display the certificate authority details.

Syntax

- **show certificate ca WORD<1–45>**

Command Parameters

WORD<1–45>

Specifies name of the Certificate Authority. If the name is not specified, the command displays the CA details of all configured CA.

Default

None

Command Mode

User EXEC

Command Output

The **show certificate ca** command displays the following information:

Output field	Description
Name	Specifies the user defined name referring to the Certificate Authority issuing the Digital Certificate.
CommonName	Specifies the Common Name of the Certificate Authority issuing the Digital Certificate.
KeyName	Specifies the generated key pair that was first associated with the CA trustpoint.
SubjectName	Specifies the subject Distinguished Name (DN) or subject alternative name identity to bind with the CA trustpoint. The default is Global.
CaUrl	Specifies the URL of the Certificate Authority issuing the Digital Certificate.
UsePost	Specifies if the HTTP request type is URL or POST. Where, TRUE indicates EJBCA and FALSE indicates Win2012 CA.
SubjectCertValidityDays	Specifies number of days for which subject certificate is valid.

Output field	Description
Action	Specifies the various actions that a Certificate Authority can take. • noop - No operation • caauth - Certificate Authority authentication • enroll - Certificate Enrolment Request • renew - Certificate Renew Request • remove - Removes the subject certificate obtained online from the Certificate Authority • install - Installs the subject certificate obtained online from the Cerificate Authority • generateCsr - Generates the Certificate Signing Request required to obtain the Offline Subject Certificate
LastActionStatus	Specifies the status of the last action. • none - No action is performed yet • success - Execution of the action triggered is completed successfully • failed - Execution of the action triggered has failed • inProgress - Execution of the action triggered is in progress
LastActionFailureReason	Specifies the reason of failure for the last action performed by the Certificate Authority.
UsedFor	Specifies if the CA trustpoint is used by a specific application, such as SSH-X509. Default indicates the first configured CA trustpoint. Default displays in this field if you have only one CA trustpoint configured.

The following examples displays the certificate CA information:

```
Switch:1(config)#show certificate ca


CA table entry
Name                       :   a1
CommonName                 :   CaA1
KeyName                    :   rsa_2048
SubjectName                :
CaUrl                      :   http://192.51.100.9:8080/ejbca/publicweb/apply/scep/test/
pkiclient.exe
UsePost                    :   1
SubjectCertValidityDays    :   365
Action                     :   (null)
LastActionStatus           :   (null)
LastActionFailureReason    :
CA-Auth Sha256Fingerprint :
bd9bb74b3f4d75e86113222a8d291b6349c7a42c457e487b9be0a48b4f09cc7c
UsedFor                    :


CA table entry
Name                       :   a2
```

```
CommonName                :   CaA2
KeyName                   :   pki_key
SubjectName               :   822
CaUrl                     :   http://192.51.100.9:8080/ejbca/publicweb/apply/scep/test/
pkiclient.exe
UsePost                   :   1
SubjectCertValidityDays   :   365
Action                    :   (null)
LastActionStatus          :   (null)
LastActionFailureReason   :
CA-Auth Sha256Fingerprint :
0ccb8d0c38d36cf427187f0e1dd380536c078fd6fae39ec9872187327912056b
UsedFor                   :   Default
```

show certificate cert-type

Display the digital certificate for given certificate type or lists all the certificate details from the local store for given certificate type.

Syntax

- **show certificate cert-type default-tls-certificate**
- **show certificate cert-type intermediate-ca-cert WORD<1-80>**
- **show certificate cert-type offline-ca-cert**
- **show certificate cert-type offline-subject-cert**
- **show certificate cert-type online-ca-cert**
- **show certificate cert-type online-subject-cert**
- **show certificate cert-type root-ca-cert WORD<1-80>**

Command Parameters

default-tls-certificate

Displays the default TLS certificate (self-signed).

intermediate-ca-cert WORD<1-80>

Specifies the intermediate certificate obtained offline from Certificate Authority.

offline-ca-cert

Specifies Certificate Authority certificate obtained offline from Certificate Authority

offline-subject-cert

Specifies subject certificate obtained offline from Certificate Authority.

online-ca-cert

Specifies Certificate Authority Certificate obtained online from Certificate Authority.

online-subject-cert

Specifies subject certificate obtained online from Certificate Authority.

root-ca-cert WORD<1-80>

Specifies root certificate obtained offline from Root Certificate Authority.

Default

None

Command Mode

User EXEC

Command Output

The **show certificate cert-type** command displays the following information:

Output field	Description
Certificate Type	Indicates the type of certificate. • Self-signed certificate • Root Certificate • Offline subject certificate • Online subject certificate • Intermediate CA certificate • Offline CA certificate • Online CA certificate
VersionNumber	Indicates the certificate version number for the subject as issued by the Certificate Authority.
SerialNumber	Indicates the certificate serial number for the subject as issued by the Certificate Authority.
IssuerName	Indicates the certificate issuer name for the subject as issued by the Certificate Authority.
ValidityPeriodNotBefore	Indicates the certificate validation period start date for the subject as issued by the Certificate Authority.
ValidityPeriodNotAfter	Indicates the certificate validation period last date for the subject as issued by the Certificate Authority.
CertificateSignatureAlgorithm	Indicates the algorithm used for the issuer's signature on the certificate for the subject as issued by the Certificate Authority.
CertificateSignature	Indicates the issuer's signature on the certificate for the subject as issued by the Certificate Authority.
Subject	Indicates the details of the subject on its certificate as issued by Certificate Authority.
SubjectPublicKeyAlgorithm	Indicates the algorithm used to generate the subject's public key for the certificate issued by the Certificate Authority.
SubjectPublicKey	Indicates the public key of the subject used for Certificate Signing Request.

Output field	Description
HasBasicConstraint	Indicates whether certificate contains basic certificate constraint.
HasKeyUsage	Indicates whether certificate contains basic key usage constraint.
IsCa	Indicates if the certificate is a CA certificate or not.
KeyUsage	Indicates the purpose of the key used in the certificate. It is represented in the form of bits as follows: • bit 0 - digitalSignature • bit 1 - nonRepudiation • bit 2 - keyEncipherment • bit 3 - dataEncipherment • bit 4 - keyAgreement • bit 5 - keyCertSign • bit 6 - cRLSign • bit 7 - encipherOnly • bit 8 - decipherOnly
ExtendedKeyUsage	Indicates the purpose for which the key is used in addition to or in place of the basic purposes indicated in the key-usage field of the certificate.
CDPUrl	Indicates the CDP URL present in the Digital Certificate Extensions field.
OCSPUrl	Indicates the OCSP URL present in the Digital Certificate AIA field.
Status	Indicates the certificate status.
Installed	Indicates if the certificate is installed.

The following example displays the offline subject certificate:

```
Switch:1>show certificate cert-type offline-subject-cert
CERT table entry
Certificate Type                :   Offline Subject Certificate
VersionNumber                   :   X.509 v3
SerialNumber                    :   5de44b25394462b8
IssuerName                      :   CN:subCa1, EM:, OU:, O:, L:, P:, C:
ValidityPeriodNotBefore         :   07/05/2021 12:24:45
ValidityPeriodNotAfter          :   07/05/2022 12:24:45
CertificateSignatureAlgorithm   :   sha256withRSAEncryption
CertificateSignature            :
34f5037b30b0332e15f504316be86afcc41ad0b93699bc8de1b5cbe97a8cc834593837032ab492e0c5eee9a1fe
8db
99e8ea7aeb41fdce86818e0c08b1ed9e79a43247383e88fd3ef504a28b1ee525be60cba78291be16f57fb54174
33ec9dce601c9b4e77986c5db9430ce6cece48b
3dc143d042614404bdc3c2df16f68bb1b0609e593636a2806b285cb8fa7e470b442b50e4d3c4a663ac99d5d3b4
29a9b4966ea5ce16da6b7d7c5607832cc6acaea
e578419ba52e11cbe30d2cbb53a05de58e374657fc5983a92c699ba6896160c9f32e6625bd6f71003259773e71
d7c89df3ddc0a8603c1a8c8f6e248002f2bd217
1a6e922abf2e8134b311d1897319bbb7
Subject                         :   CN:s15, EM:demo, OU:demo, O:demo, L:demo, P:demo, C:RO
SubjectPublicKeyAlgorithm       :   rsaEncryption
SubjectPublicKey                :
00000000000000020000001000000300d06092a864886f70d0101010500000000000000010d020000000003
```

```
010
00100000100c150b1851644aaaef08060f3b3a7a0618758b84184867ffd80b3e02ec30676171fe36e99f545065
6fc6e6db672b6239f760c97c3e49639cea5d503
c0e478bf7a4d213d5698d09d63622ccb279addbaa34135c81d70660489b55b6babca594f17d8ed250cf917325d
f0f73a10896157e6e3a24a584bc713b2e6493d0
59c8efd53bbbf5db0aa95b43c1668ba1053d0fe0e5c44dc889bd35bf11730e5827cb2068048ab97e9f0757514f
47332337376eed83a7cb95a53462639f5a47f02
6b0172cfa3ddffee7269e737a32d8f2e5590a9ee07d3f329af4e4f2a73ed9de599916bc25e6ac51e482cbbb71f
736ec0e396fc314e5eed3c438efff68d1a31bdb
ed24d55
HasBasicConstraint              :   1
HasKeyUsage                     :   1
IsCa                            :   0
KeyUsage                        :   15 digitalSignature  nonRepudiation  keyEncipherment
dataEncipherment
ExtendedKeyUsage                :   TLS Web Client Authentication, OCSP Signing, TLS Web
Server Authentication,
CDPUrl                          :   http://192.51.100.9:8080/ejbca/publicweb/webdist/
certdist?cmd=crl&issuer=CN=subCa1
OCSPUrl                         :   http://192.51.100.9:8080/ejbca/publicweb/status/ocsp

Revocation Status               :   unknown
Status                          :   offline-certificate
Installed                       :   1

CertificateFileName             :   self_cert_s15.der
```

show certificate key-name

Display the name and public key of all the key-pairs.

Syntax

- **show certificate key-name**

Default

None

Command Mode

User EXEC

Command Output

The **show certificate key-name** command displays the following information:

Output field	Description
Key Name	Indicates the name of the key-pair generated for the subject. It is an auto generated entity, generated as the combination of key-type and key-size.
Public Key Value	Indicates the public key of the subject used to the Certificate Signing Request.

The following examples displays the key-pairs:

```
Switch:1>show certificate key-name
Key Name: pki_key
Public Key Value:
00000000000000010000000102000000000301000100000100bdb1cf8382d66a2d2d0d24b4477908641c16423c
089d9131781a3ada005e
52074e1ff3561e29598f93c53dcb06e4d235335573419bb938b6ccf93d3e6767d0932e129ea2f556276efce2be
825df1f9dc661d3cafee7125f4f7126f5ba7e8
d9029623398b7d3fb00063ea0e4bedd56e276c52a6371b289de3ee4198ff2397b512b516604eac4e5f0f4a0621
d7ac42541491d368f21e17a440aa6130a825a2
a7ca6ab1d7a7868f93e4d0d83c7e4973cf204b4f5f654abbaa9aa6199247976488b0957e65b656a6d21a2a4ac4
d322a36c786d8a8deec763b6aec0d05b0f6bfe
87602caecb2cc71e2e4f9f4f8c4d4d4e9b25adf9c02eb44b763542f0449a326d0f3b

Key Name: rsa_2048
Public Key Value:
00000000000000010000000102000000000301000100000100c150b1851644aaaef08060f3b3a7a0618758b841
84867ffd80b3e02ec306
76171fe36e99f5450656fc6e6db672b6239f760c97c3e49639cea5d503c0e478bf7a4d213d5698d09d63622ccb
279addbaa34135c81d70660489b55b6babca59
4f17d8ed250cf917325df0f73a10896157e6e3a24a584bc713b2e6493d059c8efd53bbbf5db0aa95b43c1668ba
1053d0fe0e5c44dc889bd35bf11730e5827cb2
068048ab97e9f0757514f47332337376eed83a7cb95a53462639f5a47f026b0172cfa3ddffee7269e737a32d8f
2e5590a9ee07d3f329af4e4f2a73ed9de59991
6bc25e6ac51e482cbbb71f736ec0e396fc314e5eed3c438efff68d1a31bdbed24d55
```

show certificate subject

Display the details of the configured subject.

Syntax

- **show certificate subject**

Default

None

Command Mode

User EXEC

Command Output

The **show certificate subject** command displays the following information:

Output field	Description
Subject Name	Specifies the Subject Name field of the subject sending the Certificate Signing Request (CSR) to the Certificate Authority. The default is Global.
CommonName	Specifies the Common Name field of the subject sending the CSR to the Certificate Authority.

Output field	Description
EmailAddress	Specifies the Email address of the subject sending the CSR to the Certificate Authority.
OrganizationalUnit	Specifies the Organizational Unit field of the subject sending the CSR to the Certificate Authority.
Organization	Specifies the Organization of the subject sending the CSR to the Certificate Authority.
Locality	Specifies the name of the Locality of the subject sending the CSR to the Certificate Authority.
Province	Specifies the Province name of the subject sending the CSR to the Certificate Authority.
Country	Specifies the name of the country of the subject sending the CSR to the Certificate Authority.

The following examples displays the details of the configured subject:

```
Switch:1>show certificate subject
Subject Name         : client1
Common Name          : client1.example.dod.mil
Email Address        : client1@extemenetworks.com
Organizational Unit  : Engineering
Organization         : ExtremeNetworks
Locality             : Salem
Province             : Massachusetts
Country              : US

Subject Name         : Global
Common Name          : s15
Email Address        : enduser15@extremenetworks.com
Organizational Unit  : Engineering
Organization         : ExtremeNetworks
Locality             : Salem
Province             : Massachusetts
Country              : US
```

show certificate subject-alternative-name

View the subject alternative names configured on the switch.

Syntax

- **show certificate subject-alternative-name**

Default

None.

Command Mode

User EXEC

Command Output

The **show certificate subject-alternative-name** command displays the following information:

Output field	Description
TYPE	Specifies the type of subject alternative name in the table.
NAME	Specifies the alternative name in table.

Example

The following example displays the switch configuration.

```
Switch:1>show certificate subject-alternative-name
================================================================================================
                                    SAN Table
================================================================================================
TYPE     NAME                        SUBJECT
------------------------------------------------------------------------------------------------
E-MAIL   name@company.com            822
DNS      822.extremenetworks.com     822
IP       192.0.2.22                  822
```

show cfm maintenance-association

Display the Connectivity Fault Management (CFM) Maintenance-Association configuration. An MA represents a logical grouping of monitored entities within its Maintenance Domain.

Syntax

- **show cfm maintenance-association**

Default

None

Command Mode

User EXEC

show cfm maintenance-domain

Display the Connectivity Fault Management (CFM) Maintenance-Domain configuration. A Maintenance-Domain is the part of a network that is controlled by a single administrator. A single MD may contain several Maintenance-Associations (MA).

Syntax

- **show cfm maintenance-domain**

Default

None

Command Mode

User EXEC

show cfm maintenance-endpoint

Display the Connectivity Fault Management Maintenance Endpoint configuration. A Maintenance Endpoint (MEP) represents a managed CFM entity, associated with a specific Domain Service Access Point of a service instance, which can generate and receive CFM Protocol Data Units (PDUs) and track any responses. MEP functionality can be divided into the following functions: Fault Detection, Fault Verification, Fault Isolation and Fault Notification.

Syntax

- **show cfm maintenance-endpoint**

Default

None

Command Mode

User EXEC

show cfm spbm

Displays the global CFM MEP configuration for SPBM VLANs.

Syntax

- **show cfm spbm**

Default

None

Command Mode

User EXEC

Command Output

The **show cfm spbm** command displays the following information:

Output field	Description
LEVEL	Specifies the global SPBM CFM maintenance level for the chassis. The default is 4.
ADMIN	Specifies if CFM MEPs and MIPs are globally enabled.
MEP ID	Specifies the global MEP ID. The default is 1.
MAC	Specifies the MAC address.

show cli info

Display general Console settings.

Syntax

- **show cli info**

Default

None

Command Mode

User EXEC

Command Output

The **show cli info** command displays the following information:

Output field	Description
more	Displays if scrolling for the output display is enabled.
screen-lines	Displays the number of lines in the output display for the current session.
telnet-sessions	Displays the number of supported inbound Telnet sessions
timeout	Displays the idle timeout period before automatic logoff.
monitor duration	Displays the duration for which statistics are monitored.
monitor interval	Displays the interval at which statistics are monitored.
use default login prompt	Displays if the system uses the default login prompt.
default login prompt	Displays the default login prompt.
custom login prompt	Displays the custom login prompt.

Output field	Description
use default password prompt	Displays if the system uses the default password prompt.
default password prompt	Displays the default password prompt.
custom password prompt	Displays the custom password prompt.
prompt	Displays the system prompt.

Example

The following example displays information about the CLI configuration.

```
Switch:1>show cli info

cli configuration

more            : true
screen-lines    : 23
telnet-sessions : 8
timeout         : 900 seconds
monitor duration: 300 seconds
monitor interval: 5 seconds

use default login prompt    : true
default login prompt        : Login:
custom login prompt         : Login:
use default password prompt : true
default password prompt     : Password:
custom password prompt      : Password:
prompt : Switch
```

show cli password

Display the access, logon name, and password combinations.

Syntax

- **show cli password**

Default

None

Command Mode

User EXEC

Usage Guidelines

After you enable enhanced secure mode, the parameters in the output for the **show cli password** command apply to all of the role-based users, except for the admin

user. So for instance, the system mandates that the admin user must have a password length of 15, and a password with two of each of the following characters:

- uppercase
- lowercase
- numeric
- special character

However, the admin user can configure this differently for the other user access levels. The values that display for min-passwd-len and password-rule are those configured by admin, and they apply to the privilege, operator, security, and auditor access levels.

Command Output

The **`show cli password`** command displays the following information depending on configuration:

Output field	Description
aging	Displays the maximum validity period, in days, for a password.
min-passwd-len	Displays the minimum length for passwords.
password-history	Displays the number of previous passwords the switch stores.
password-hashing	Displays the Secure Hash Algorithm (SHA) level.
change-interval	Displays the minimum period of time, in hours, between password changes.
password-rule	Displays the password complexity rule. The first variable defines the number of uppercase characters required. The second variable defines the number of lowercase characters required. The third variable defines the number of numeric characters required. The fourth variable defines the number of special characters required.
pre-expiry-notification-interval	Displays the interval between notifications to users that their passwords will expire.
post-expiry-notification-interval	Displays the interval between notifications to users that their passwords have expired.
MAX-SSH-SESSIONS	Displays the maximum number of SSH sessions allowed for each access level.
Default Lockout Time	Displays the lockout time, in seconds, after the configured number of invalid attempts.
Default Lockout Retries	Displays the number of invalid attempts allowed before lockout.
Lockout-Time	Displays the IP address and timeout for locked out hosts due to invalid login attempts.

Examples

The following example displays output from the **show cli password** command if enhanced secure mode is disabled.

```
Switch:1#show cli password
        access-level
        aging     90

        min-passwd-len 10
        password-history 3
        password-hashing sha2

        Default Lockout Time       60
        Default Lockout Retries        3
        Lockout-Time:
                IP                  Time
                src =  192.0.2.1    timeout = 60
```

The following example displays output from the **show cli password** command if enhanced secure mode is enabled.

```
Switch:1#show cli password
        change-interval 24
        min-passwd-len 8
        password-history 3
        password-rule 1 1 1 1
        pre-expiry-notification-interval 1 7 30
        post-expiry-notification-interval 1 7 30
        access-level
        ACCESS        LOGIN       AGING  MAX-SSH-SESSIONS  STATE
        admin         rwa         90     3                 ena
        privilege                 90     3                 dis
        operator      oper1       90     3                 ena
        security      security    90     3                 ena
        auditor       auditor     90     3                 ena
        Default Lockout Time       60
        Lockout-Time:
```

show cli username

Display user name information.

Syntax

- **show cli username**

Default

None

Command Mode

User EXEC

Command Output

The **show cli username** command displays the following information:

Output field	Description
UserName	Displays the user name associated with the access level.
AccessLevel	Displays the access level (ro, rw, rwa, l1, l2, l3).
State	Displays if the access level is enabled.
Type	Displays the one of the following user types: • default—default user (ro, rw, rwa, l1, l2, l3) • userDefined—new user

The following example displays output from the **show cli username** command:

```
Switch:1#show cli username
============================================================
UserName              AccessLevel    State        Type
============================================================
ro                    ro             enable       default
rw                    rw             enable       default
rwa                   rwa            NA           default
mar1                  rw             enable       userDefined
mar2                  ro             enable       userDefined
m3                    l3             enable       default
m2                    l2             enable       default
l1                    l1             enable       default
```

show clock

Display the current time.

Syntax

- **show clock**
- **show clock detail**
- **show clock time-zone**

Command Parameters

detail

Displays detailed date information.

time-zone

Displays the local time-zone configuration.

Default

None

Command Mode

User EXEC

show debug-file

Shows all debug files.

Syntax

- **show debug-file [{slot[-slot][,...]}]**

Command Parameters

{slot[-slot][,...]}

Displays debug files for the slot that you select. If you do not select a slot number, the device displays all types of the archived debug files present in a slot-by-slot basis. If you select a slot number, the device only displays archived files for the slot you select.

Default

None

Command Mode

User EXEC

Command Output

The **show debug-file** command displays the following information:

Output field	Description
Directory	Specifies a directory name in /intflash/<file>.
File	Specifies the file name of each dir.
Size	Specifies the sizes of each directory.
Created	Specifies when the directory was created.

Example

The following example displays the debug files information on the switch.

```
Switch:1> show debug-file

 ================================================================================
                            Core Files
 ================================================================================
 Directory: /intflash/coreFiles/1
```

```
1.  File:    core.cbcp-main.x.20211125155737.1.tar
    Size:    19432448 bytes
    Created: Thu Nov 25 17:57:42 2021
2.  File:    core.cbcp-main.x.20211125151548.1.tar
    Size:    19366912 bytes
    Created: Thu Nov 25 17:15:53 2021
3.  File:    core.cbcp-main.x.20211116115203.1.tar
    Size:    19657728 bytes
    Created: Tue Nov 16 13:52:17 2021
4.  File:    core.cbcp-main.x.20211116110709.1.tar
    Size:    19745792 bytes
    Created: Tue Nov 16 13:07:23 2021

 ================================================================================
                          Archive Files
 ================================================================================
Directory: /intflash/archive/1
1.  File:    archive.20211007163734.1.tar
    Size:    10728448 bytes
    Created: Thu Oct  7 19:37:34 2021

 ================================================================================
                               PMEM Files
 ================================================================================

 ================================================================================
                              DMalloc Files
 ================================================================================
 ================================================================================
                              Flrec Files
 ================================================================================
Directory: /intflash/flrec/1
1.  File:    trace.20211028104249.ssio-1.txt
    Size:    307795 bytes
    Created: Thu Oct 28 13:42:49 2021
2.  File:    trace.20211028104249.cbcp-main.x-1.txt
    Size:    293419 bytes
    Created: Thu Oct 28 13:42:49 2021
3.  File:    trace.20211028104249.namServer-1.txt
    Size:    83152 bytes
    Created: Thu Oct 28 13:42:49 2021
4.  File:    trace.20211028104249.logServer-1.txt
    Size:    307754 bytes
    Created: Thu Oct 28 13:42:49 2021
 ================================================================================
                             WdStats Files
 ================================================================================
 Directory: /intflash/wd_stats/1
1.  File:    wd_stats.cbcp-main.x.1.log.backup
    Size:    2381 bytes
    Created: Mon Dec  6 16:07:56 2021
================================================================================
                               var log messages
================================================================================
Local CP Directory: /intflash/var/log/messages.20211118094845
1.  File:    messages.20211118094845/messages
    Size:    149954 bytes
    Created: Thu Nov 18 11:48:41 2021
2.  File:    messages.20211118094845/messages.0
    Size:    204832 bytes
    Created: Thu Nov 18 09:28:05 2021
Local CP Directory: /intflash/var/log/messages.20211118122542
1.  File:    messages.20211118122542/messages
    Size:    112418 bytes
```

```
    Created: Thu Nov 18 14:25:32 2021
2.  File:    messages.20211118122542/messages.0
    Size:    204843 bytes
    Created: Thu Nov 18 12:38:59 2021
```

show debug ip pim

Display the configuration of IP PIM debugging commands.

Syntax

- **show debug ip pim**

Default

None

Command Mode

User EXEC

show debug ipv6 pim

Display the configuration of IPv6 PIM debugging commands.

Syntax

- **show debug ipv6 pim**

Default

None

Command Mode

User EXEC

show debug spbm fib interface-table

Display debug information for your SPBM Forwarding Information Base (FIB) configuration.

Syntax

- **show debug spbm fib interface-table [index <0-63>]**

Command Parameters

index <0-63>

Specifies the interface instance.

Default

None

Command Mode

User EXEC

show debug spbm fib mc-mgid-info

Display debug information for your SPBM Forwarding Information Base (FIB) configuration.

Syntax

- **show debug spbm fib mc-mgid-info [mgid <0-4095>]**

Command Parameters

mgid <0-4095>

Specifies the MGID value.

Default

None

Command Mode

User EXEC

show debug spbm fib mid-table

Display debug information for your SPBM Forwarding Information Base (FIB) configuration.

Syntax

- **show debug spbm fib mid-table slot <1-12> [device <1-2> | lane <1-32>]**

Command Parameters

slot <1-12>

Specifies the slot.

device <1-2>

Specifies the device as 1 for cop or 2 for rsp.

lane <1-32>

Specifies the lane.

Default

None

Command Mode

User EXEC

show debug spbm fib multicast-table

Display debug information for your SPBM Forwarding Information Base (FIB) configuration.

Syntax

- **show debug spbm fib multicast-table slot <1-12> [device <1-2> | direction <1-2> | isid <1-16777215> | lane <1-32> | nick-name <x.xx.xx>]**

Command Parameters

slot <1-12>

Specifies the slot.

device <1-2>

Specifies the device as 1 for cop or 2 for rsp.

direction <1-2>

Specifies the direction as 1 for ingress or 2 for egress.

isid <1-16777215>

Specifies the Service Instance Identifier (I-SID).

lane <1-32>

Specifies the lane.

nick-name <x.xx.xx>

Specifies the IS-IS instance nickname in bytes.

Default

None

Command Mode

User EXEC

show debug spbm fib unicast-table

Display debug information for your SPBM Forwarding Information Base (FIB) configuration.

Syntax

- **show debug spbm fib unicast-table slot <1-12> [device <1-2> | lane <1-32>]**

Command Parameters

slot <1-12>

Specifies the slot.

device <1-2>

Specifies the device as 1 for cop or 2 for rsp.

lane <1-32>

Specifies the lane.

Default

None

Command Mode

UserEXEC

show debug spbm ip-mcast mc-data-isid

Display debug information for your SPBM IP multicast configuration.

Syntax

- **show debug spbm ip-mcast mc-data-isid [i-sid <16000000-16777215> | nick-name <x.xx.xx>]**

Command Parameters

i-sid <16000000-16777215>

Specifies the I-SID.

nick-name <x.xx.xx>

Specifies the IS-IS instance nickname in bytes.

Default

None

Command Mode

User EXEC

show debug spbm ip-mcast mc-end-points

Display debug information for your SPBM IP multicast configuration.

Syntax

- **show debug spbm ip-mcast mc-end-points i-sid <16000000-16777215>**

Command Parameters

i-sid <16000000-16777215>

Specifies the I-SID.

Default

None

Command Mode

User EXEC

show debug spbm ip-mcast mc-info-all

Displays debug information for your SPBM IP multicast configuration.

Syntax

- **show debug spbm ip-mcast mc-info-all [detail]**

Default

None

Command Mode

User EXEC

Example

```
Switch:1>show debug spbm ip-mcast mc-info-all

spbMcModule info:
Nick Name 327690
The Dynamic ISID Range: <16000000....16150000>
spbMcModule is Enabled
spbMcModule: is isis up TRUE
Primary vlan 4051
Secondary vlan 4052
SMLT TYPE 2
Last allocated data isid is 0
Number of element in TBUList is 0
Number of element in dIsidList is 0
Number of Multicast message dropped is 0
Number of ISIS messages dropped is 0
Number of Duplicate data isid received is 0
Number of Local Senders:0 Errors:0
Number of Local Senders with Remote Receivers:0 Errors:0
Number of Remote Senders with Local Receivers:0 Errors:0
```

show debug spbm ip-mcast mc-vsn-isid-info

Display debug information for your SPBM IP multicast configuration.

Syntax

- **show debug spbm ip-mcast mc-vsn-isid-info [<1-15999999>]**

Command Parameters

<1-15999999>

Specifies the Service Instance Identifier (I-SID).

Default

None

Command Mode

User EXEC

show debug spbm ip-mcast sender-count

Display debug information for your SPBM IP multicast configuration.

Syntax

- **show debug spbm ip-mcast sender-count [i-sid <1-15999999>]**

Command Parameters

<1-15999999>

Specifies the Service Instance Identifier (I-SID).

Default

None

Command Mode

User EXEC

show debug spbm ip-mcast vsn-sender-count

Display debug information for your SPBM IP multicast configuration.

Syntax

- **show debug spbm ip-mcast vsn-sender-count <0-16777215>**

Command Parameters

<0-16777215>

Specifies the VSN I-SID.

Default

None

Command Mode

User EXEC

show debug spbm isis adj

Display debug information for your SPBM Intermediate-System-to-Intermediate-System (IS-IS) configuration.

Syntax

- **show debug spbm isis adj**

Default

None

Command Mode

User EXEC

show debug spbm isis all-fib

Display debug information for your SPBM Intermediate-System-to-Intermediate-System (IS-IS) configuration.

Syntax

- **show debug spbm isis all-fib bvid <0-1>**

Command Parameters

bvid <0-1>

Specifies the ID of the SPBM backbone VLAN (B-VLAN).

Default

None.

Command Mode

User EXEC

show debug spbm isis circuit ifIndex

Display debug information for your SPBM Intermediate-System-to-Intermediate-System (IS-IS) configuration.

Syntax

- **show debug spbm isis circuit ifIndex <0-6400>**

Command Parameters

ifIndex <0-6400>

Specifies the interface to which this circuit corresponds.

Default

None

Command Mode

User EXEC

show debug spbm isis circuit-all

Display debug information for your SPBM Intermediate-System-to-Intermediate-System (IS-IS) configuration.

Syntax

- **show debug spbm isis circuit-all**

Default

None

Command Mode

User EXEC

show debug spbm isis clear-spf-log

Display debug information for your SPBM Intermediate-System-to-Intermediate-System (IS-IS) configuration.

Syntax

- **show debug spbm isis clear-spf-log**

Default

None

Command Mode

User EXEC

show spbm isis clear-uni-fib-stats

Display debug information for your SPBM Intermediate-System-to-Intermediate-System (IS-IS) configuration.

Syntax

- **show spbm isis clear-uni-fib-stats**

Default

None

Command Mode

User EXEC

show debug spbm isis host-name

Display debug information for your SPBM Intermediate-System-to-Intermediate-System (IS-IS) configuration.

Syntax

- **show debug spbm isis host-name**

Default

None

Command Mode

User EXEC

show debug spbm isis inode

Display debug information for your SPBM Intermediate-System-to-Intermediate-System (IS-IS) configuration.

Syntax

- **show debug spbm isis inode**

Default

None

Command Mode

User EXEC

show debug spbm isis isid-count-in-lsp0

Display debug information for your SPBM Intermediate-System-to-Intermediate-System (IS-IS) configuration.

Syntax

- **show debug spbm isis isid-count-in-lsp0 lsp <xxxx.xxxx.xxxx.xxx-xx>**

Command Parameters

lsp <xxxx.xxxx.xxxx.xxx-xx>

Specifies the LSP ID.

Default

None

Command Mode

User EXEC

show debug spbm isis isid-hash-tbl

Display debug information for your SPBM Intermediate-System-to-Intermediate-System (IS-IS) configuration.

Syntax

- **show debug spbm isis isid-hash-tbl action <1-3>**

Command Parameters

action <1-3>

Specifies one of the following actions:

- 1-add
- 2-del
- 3-imie

Default

None

Command Mode

User EXEC

show debug spbm isis isid-in-lsp0

Display debug information for your SPBM Intermediate-System-to-Intermediate-System (IS-IS) configuration.

Syntax

- **show debug spbm isis isid-in-lsp0 lsp <xxxx.xxxx.xxxx.xxx-xx>**

Command Parameters

lsp <xxxx.xxxx.xxxx.xxx-xx>

Specifies the LSP ID.

Default

None

Command Mode

User EXEC

show debug spbm isis iso-tmo

Display debug information for your SPBM Intermediate-System-to-Intermediate-System (IS-IS) configuration.

Syntax

- **show debug spbm isis iso-tmo**

Default

None

Command Mode

User EXEC

show debug spbm isis local-opt

Display debug information for your SPBM Intermediate-System-to-Intermediate-System (IS-IS) configuration.

Syntax

- **show debug spbm isis local-opt**

Default

None

Command Mode

User EXEC

show debug spbm isis lsp-buf

Display debug information for your SPBM Intermediate-System-to-Intermediate-System (IS-IS) configuration.

Syntax

- **show debug spbm isis lsp-buf lsp <xxxx.xxxx.xxxx.xx-xx>**

Command Parameters

lsp <xxxx.xxxx.xxxx.xxx-xx>

Specifies the LSP ID.

Default

None

Command Mode

User EXEC

show debug spbm isis lsp-buf-all

Display debug information for your SPBM Intermediate-System-to-Intermediate-System (IS-IS) configuration.

Syntax

- **show debug spbm isis lsp-buf-all lsp <xxxx.xxxx.xxxx.xx-xx>**

Command Parameters

lsp <xxxx.xxxx.xxxx.xxx-xx>

Specifies the LSP ID.

Default

None

Command Mode

User EXEC

show debug spbm isis mac-in-lsp0

Display debug information for your SPBM Intermediate-System-to-Intermediate-System (IS-IS) configuration.

Syntax

- **show debug spbm isis mac-in-lsp0 lsp <xxxx.xxxx.xxxx.xx-xx>**

Command Parameters

lsp <xxxx.xxxx.xxxx.xxx-xx>

Specifies the LSP ID.

Default

None

Command Mode

User EXEC

show debug spbm isis mc-cvlan-tbl

Display debug information for your SPBM Intermediate-System-to-Intermediate-System (IS-IS) configuration.

Syntax

- **show debug spbm isis mc-cvlan-tbl <1-4059>**

Command Parameters

<1-4059>

Specifies the CVLAN ID.

Default

None

Command Mode

User EXEC

show debug spbm isis mc-history

Display debug information for your SPBM Intermediate-System-to-Intermediate-System (IS-IS) configuration.

Syntax

- **show debug spbm isis mc-history**

Default

None

Command Mode

User EXEC

show debug spbm isis mc-lsp-info

Display debug information for your SPBM Intermediate-System-to-Intermediate-System (IS-IS) configuration.

Syntax

- **show debug spbm isis mc-lsp-info lsp <xxxx.xxxx.xxxx.xxx-xx>**

Command Parameters

lsp <xxxx.xxxx.xxxx.xxx-xx>

Specifies the LSP ID.

Default

None

Command Mode

User EXEC

show debug spbm isis mc-lsp-info-all

Display debug information for your SPBM Intermediate-System-to-Intermediate-System (IS-IS) configuration.

Syntax

- **show debug spbm isis mc-lsp-info-all**

Default

None

Command Mode

User EXEC

show debug spbm isis mc-rx-isid-count-in-lsp0

Display debug information for your SPBM Intermediate-System-to-Intermediate-System (IS-IS) configuration.

Syntax

- **show debug spbm isis mc-rx-isid-count-in-lsp0 lsp <xxxx.xxxx.xxxx.xxx-xx>**

Command Parameters

lsp <xxxx.xxxx.xxxx.xxx-xx>

Specifies the LSP ID.

Default

None

Command Mode

User EXEC

show debug spbm isis mc-rx-isid-in-lsp0

Display debug information for your SPBM Intermediate-System-to-Intermediate-System (IS-IS) configuration.

Syntax

- **show debug spbm isis mc-rx-isid-in-lsp0 lsp <xxxx.xxxx.xxxx.xx-xx>**

Command Parameters

lsp <xxxx.xxxx.xxxx.xxx-xx>

Specifies the LSP ID.

Default

None

Command Mode

User EXEC

show debug spbm isis mc-tx-isid-count-in-lsp0

Display debug information for your SPBM Intermediate-System-to-Intermediate-System (IS-IS) configuration.

Syntax

- **show debug spbm isis mc-tx-isid-count-in-lsp0 lsp <xxxx.xxxx.xxxx.xx-xx>**

Command Parameters

lsp <xxxx.xxxx.xxxx.xxx-xx>

Specifies the LSP ID.

Default

None

Command Mode

User EXEC

show debug spbm isis mc-tx-isid-in-lsp0

Display debug information for your SPBM Intermediate-System-to-Intermediate-System (IS-IS) configuration.

Syntax

- **show debug spbm isis mc-tx-isid-in-lsp0 lsp <xxxx.xxxx.xxxx.xx-xx>**

Command Parameters

lsp <xxxx.xxxx.xxxx.xxx-xx>

Specifies the LSP ID.

Default

None

Command Mode

User EXEC

show debug spbm isis mcast-fib-count

Display debug information for your SPBM Intermediate-System-to-Intermediate-System (IS-IS) configuration.

Syntax

- **show debug spbm isis mcast-fib-count bvid <0-1>**

Command Parameters

bvid <0-1>

Specifies the ID of the SPBM backbone VLAN (B-VLAN).

Default

None

Command Mode

User EXEC

show debug spbm isis mc-vrf-tbl

Display debug information for your SPBM Intermediate-System-to-Intermediate-System (IS-IS) configuration.

Syntax

- **show debug spbm isis mc-vrf-tbl WORD<0-64>**

Command Parameters

WORD<0-64>

Specifies the VRF name.

Default

None

Command Mode

User EXEC

show debug spbm isis ngb-in-lsp0

Display debug information for your SPBM Intermediate-System-to-Intermediate-System (IS-IS) configuration.

Syntax

- **show debug spbm isis ngb-in-lsp0 lsp <xxxx.xxxx.xxxx.xx-xx>**

Command Parameters

lsp <xxxx.xxxx.xxxx.xxx-xx>

Specifies the LSP ID.

Default

None

Command Mode

User EXEC

show debug spbm isis nn-hash-tbl

Display debug information for your SPBM Intermediate-System-to-Intermediate-System (IS-IS) configuration.

Syntax

- **show debug spbm isis nn-hash-tbl**

Default

None

Command Mode

User EXEC

show debug spbm isis spbm-inst

Display debug information for your SPBM Intermediate-System-to-Intermediate-System (IS-IS) configuration.

Syntax

- **show debug spbm isis spbm-inst**

Default

None

Command Mode

User EXEC

show debug spbm isis spf-log

Display debug information for your SPBM Intermediate-System-to-Intermediate-System (IS-IS) configuration.

Syntax

- **show debug spbm isis spf-log**

Default

None

Command Mode

User EXEC

show debug spbm isis sysid-nn-hash-tbl

Display debug information for your SPBM Intermediate-System-to-Intermediate-System (IS-IS) configuration.

Syntax

- **show debug spbm isis sysid-nn-hash-tbl**

Default

None

Command Mode

User EXEC

show debug spbm isis multi-area boundary-node history

Displays the SPBM Intermediate-System-to-Intermediate-System (IS-IS) Multi-area SPB boundary node history for home and remote areas on the switch .

Syntax

- **show debug spbm isis multi-area boundary-node history**

Default

None

Command Mode

User EXEC

Example

The following example displays the SPBM IS-IS Multi-area SPB boundary node history information.

```
Switch:1>show debug spbm isis multi-area boundary-node history

BN History:

    Node mac d8:84:66:f6:f0:00
        isPrimary 1
        sysIdHome 0012.1212.2412
        sysIdRemote d884.66f6.f086
        nickname 0.24.12
        redirect Bmac Home 02:24:12:ff:ff:fe
        redirect Bmac Remote 02:24:12:ff:ff:fd
                VN ifid 2
        reach flag: BN reachable BOTH
        state REACHABLE_BOTH
        state machine log:
UNREACHABLE             -> OTHER_BN_TR_REACHABLE_HOME         (                  )  [Fri
Jan 21 2022 01:42:30.531710] ->
REACHABLE_HOME          -> OTHER_BN_TR_REACHABLE_REMOTE       (tr_bn_rdy         )  [Fri
Jan 21 2022 01:42:30.533586] ->
REACHABLE_BOTH          -> OTHER_BN_TR_IS_FWDING_BN           (tr_is_fwding_bn   )  [Fri
Jan 21 2022 01:42:32.488726] ->
REACHABLE_BOTH(x17)
```

show debug spbm isis multi-area state-machines

Displays debug information of the SPBM Intermediate-System-to-Intermediate-System (IS-IS) Multi-area SPB state machines for the boundary node or virtual node (VN) for home and remote areas on the switch.

Syntax

- **show debug spbm isis multi-area state-machines**

Default

None

Command Mode

User EXEC

Example

The following example displays the SPBM IS-IS Multi-area SPB state machines information on the switch.

```
Switch:1>show debug spbm isis multi-area state-machines

OWN BN SM:
INIT                                  -> TR_FIRST_ADJ_REMOTE     (                        )  [Fri
Jan 21 2022 01:42:13.622925] ->
HOME_DOWN_REMOTE_UP                   -> TR_ADJ_BOTH             (                        )  [Fri
Jan 21 2022 01:42:18.617864] ->
HOME_UP_REMOTE_UP_WAIT1               -> TR_TIMER1_EXPIRED       (tr_both_not_op          )  [Fri
Jan 21 2022 01:42:30.448741] ->
HOME_UP_REMOTE_UP                     -> TR_BECOME_PRIMARY       (tr_pri_no_vn_reach      )  [Fri
Jan 21 2022 01:42:30.448950] ->
PRIMARY_HOME_UP_REMOTE_UP_WAIT_T2     -> TR_VN_BOTH_ADJ          (                        )  [Fri
Jan 21 2022 01:42:30.452505] ->
PRIMARY_HOME_UP_REMOTE_UP_WAIT_T2     -> TR_NEW_PRIMARY_DETECTED (tr_new_pri              )  [Fri
Jan 21 2022 01:42:30.525681] ->
HOME_UP_REMOTE_UP_NOT_RDY             -> TR_VN_ADJ_DOWN          (                        )  [Fri
Jan 21 2022 01:42:30.525691] ->
HOME_UP_REMOTE_UP_NOT_RDY             -> TR_VN_BOTH_ADJ          (tr_vn_both_adj          )  [Fri
Jan 21 2022 01:42:32.488535] ->
HOME_UP_REMOTE_UP_RDY_FWD             -> TR_LAST_ADJ_HOME_DOWN   (tr_op_stby_cleanup      )  [Fri
Jan 21 2022 03:44:20.186802] ->
HOME_DOWN_REMOTE_UP                   -> TR_ADJ_BOTH             (                        )  [Fri
Jan 21 2022 03:44:20.286905] ->
HOME_UP_REMOTE_UP_WAIT1               -> TR_TIMER1_EXPIRED       (tr_both_not_op          )  [Fri
Jan 21 2022 03:44:32.186420] ->
HOME_UP_REMOTE_UP                     -> TR_GET_FWDING           (                        )  [Fri
Jan 21 2022 03:44:32.186762] ->
HOME_UP_REMOTE_UP                     -> TR_NEW_PRIMARY_DETECTED (                        )  [Fri
Jan 21 2022 03:44:32.186796] ->
HOME_UP_REMOTE_UP_NOT_RDY             -> TR_VN_BOTH_ADJ          (tr_vn_both_adj          )  [Fri
Jan 21 2022 03:44:32.220492] ->
HOME_UP_REMOTE_UP_RDY_FWD

BN List  elem number 2:
    Node mac d8:84:66:f6:f0:00
        isPrimary 1

        sysIdHome 0012.1212.2412

        sysIdRemote d884.66f6.f086
        nickname 0.24.12
        redirect Bmac Home 02:24:12:ff:ff:fe
        redirect Bmac Remote 02:24:12:ff:ff:fd
```

```
                VN ifid 2
        reach flag: BN reachable BOTH
        state REACHABLE_BOTH
        state machine log:
UNREACHABLE            -> OTHER_BN_TR_REACHABLE_HOME         (                  )  [Fri Jan 21 2022
03:44:32.186613] ->
REACHABLE_HOME         -> OTHER_BN_TR_REACHABLE_REMOTE       (tr_bn_rdy         )  [Fri Jan 21 2022
03:44:32.186760] ->
REACHABLE_BOTH         -> OTHER_BN_TR_IS_FWDING_BN           (tr_is_fwding_bn   )  [Fri Jan 21 2022
03:44:32.221376] ->
REACHABLE_BOTH(x2)

    Node mac d8:84:66:f7:38:00
        isPrimary 0
        sysIdHome 0012.1212.2413
        sysIdRemote d884.66f7.3886
        nickname 1.24.13
        redirect Bmac Home 12:24:13:ff:ff:fe
        redirect Bmac Remote 12:24:13:ff:ff:fd
                VN ifid 1
        my node, state machine is not relevant

VN ADJ HOME SM:
VN_ADJ_HOME_INIT          -> VN_ADJ_HOME_TR_DESIG_UP   (                    )  [Fri Jan 21 2022
03:44:32.186617] ->
VN_ADJ_HOME_DESIG         -> VN_ADJ_HOME_TR_DOWN       (tr_vn_adj_home_up   )  [Fri Jan 21 2022
03:44:32.186633] ->
VN_ADJ_HOME_DESIG         -> VN_ADJ_HOME_TR_UP         (tr_vn_adj_home_up   )  [Fri Jan 21 2022
03:44:32.219545] ->
VN_ADJ_HOME_BOTH          -> VN_ADJ_HOME_TR_DESIG_UP   (                    )  [Fri Jan 21 2022
03:44:38.519810] ->
VN_ADJ_HOME_BOTH

VN ADJ REM SM:
VN_ADJ_REM_INIT      -> VN_ADJ_REM_TR_DOWN       (                  )  [Fri Jan 21 2022
03:44:32.186651] ->
VN_ADJ_REM_INIT      -> VN_ADJ_REM_TR_DESIG_UP   (                  )  [Fri Jan 21 2022
03:44:32.186764] ->
VN_ADJ_REM_DESIG     -> VN_ADJ_REM_TR_UP         (tr_vn_adj_rem_up  )  [Fri Jan 21 2022
03:44:32.220489] ->
VN_ADJ_REM_BOTH

VN ADJS SM:
VN_ADJS_INIT         -> VN_ADJS_TR_HOME_UP   (                    )  [Fri Jan 21 2022 03:44:32.219549]
->
VN_ADJS_HOME         -> VN_ADJS_TR_REM_UP    (tr_vn_adjs_up       )  [Fri Jan 21 2022 03:44:32.220490]
->
VN_ADJS_BOTH

spbMaVnServices: 3
```

show debug spbm isis uni-aux-tbl

Display debug information for your SPBM Intermediate-System-to-Intermediate-System (IS-IS) configuration.

Syntax

- **show debug spbm isis uni-aux-tbl bvid <0-1>**

Command Parameters

bvid <0-1>

Specifies the ID of the SPBM backbone VLAN (B-VLAN).

Default

None

Command Mode

User EXEC

show debug spbm isis uni-fib-stats

Display debug information for your SPBM Intermediate-System-to-Intermediate-System (IS-IS) configuration.

Syntax

- **show debug spbm isis uni-fib-stats**

Default

None

Command Mode

User EXEC

show debug spbm isis uni-fib-vn

Displays the SPBM Intermediate-System-to-Intermediate-System (IS-IS) unicast Forwarding Information Base (FIB) virtual node (VN) entries for home and remote areas on the switch .

Syntax

- **show debug spbm isis uni-fib-vn bvid <0-1>**

Command Parameters

bvid <0-1>

Specifies the ID of the SPBM backbone VLAN (B-VLAN).

Default

None

Command Mode

User EXEC

Command Output

The **show debug spbm isis uni-fib-vn** command displays the following information:

Output field	Description
DESTINATION ADDRESS	Specifies the destination address of the IS-IS unicast FIB VN entry
VLAN	Specifies the VLAN of the IS-IS unicast FIB VN entry.
OUTGOING PORT ifidx	Specifies the outgoing port interface index of the IS-IS unicast FIB VN entry.
COST	Specifies the cost of the IS-IS unicast FIB VN entry.
HOST-NAME	Specifies the host name of the IS-IS unicast FIB VN entry.

Example

The following example displays the SPBM unicast Forwarding Information Base (FIB) VN entries information for home and remote areas.

```
Switch:1>show debug spbm isis uni-fib-vn
================================================================================================
                          SPBM UNICAST FIB VN ENTRY INFO - HOME
================================================================================================
DESTINATION ADDRESS          VLAN          OUTGOING PORT ifidx      COST    HOST-NAME
------------------------------------------------------------------------------------------------
00:12:12:12:24:13            4051                        1                GB13
12:24:13:ff:ff:fd            4051                        1                GB13
12:24:13:ff:ff:fe            4051                        1                GB13
12:24:13:ff:ff:ff            4051                        1                GB13
00:12:12:12:24:13            4052                        1                GB13
12:24:13:ff:ff:fd            4052                        1                GB13
12:24:13:ff:ff:fe            4052                        1                GB13
12:24:13:ff:ff:ff            4052                        1                GB13
00:12:12:12:24:12            4051                        2                GB12
02:24:12:ff:ff:fd            4051                        2                GB12
02:24:12:ff:ff:fe            4051                        2                GB12
02:24:12:ff:ff:ff            4051                        2                GB12
00:12:12:12:24:12            4052                        2                GB12
02:24:12:ff:ff:fd            4052                        2                GB12
02:24:12:ff:ff:fe            4052                        2                GB12

02:24:12:ff:ff:ff            4052                        2                GB12
92:00:10:ff:ff:f0            4051                      111                vn-area-49.0010
92:00:10:ff:ff:ff            4051                      111                vn-area-49.0010
92:00:10:ff:ff:f0            4052                      111                vn-area-49.0010
92:00:10:ff:ff:ff            4052                      111                vn-area-49.0010

Total number of SPBM UNICAST FIB VN entries: 20
```

```
================================================================================================
                          SPBM UNICAST FIB VN ENTRY INFO - REMOTE
================================================================================================
DESTINATION ADDRESS          VLAN          OUTGOING PORT ifidx      COST    HOST-NAME
------------------------------------------------------------------------------------------------
d8:84:66:f7:38:86            4051                        1                 GB13
d8:84:66:f7:38:86            4052                        1                 GB13
d8:84:66:f6:f0:86            4051                        2                 GB12
d8:84:66:f6:f0:86            4052                        2                 GB12
00:11:11:11:24:14            4051                        2                 B14
12:24:14:ff:ff:ff            4051                        2                 B14
00:11:11:11:24:14            4052                        1                 B14
12:24:14:ff:ff:ff            4052                        1                 B14
92:00:20:ff:ff:f0            4051                      111                 vn-area-49.0020
92:00:20:ff:ff:ff            4051                      111                 vn-area-49.0020

92:00:20:ff:ff:f0            4052                      111                 vn-area-49.0020
92:00:20:ff:ff:ff            4052                      111                 vn-area-49.0020

Total number of SPBM UNICAST FIB VN entries: 12
```

show debug spbm l2vpn info

Display debug information for your SPBM Layer 2 VPN configuration.

Syntax

- **show debug spbm l2vpn info**

Default

None

Command Mode

User EXEC

show debug spbm l2vpn i-sid-table

Display debug information for your SPBM Layer 2 VPN configuration.

Syntax

- **show debug spbm l2vpn i-sid-table**

Default

None

Command Mode

User EXEC

show debug spbm l2vpn sm-history

Display debug information for your SPBM Layer 2 VPN configuration.

Syntax

- **show debug spbm l2vpn sm-history**

Default

None

Command Mode

User EXEC

show debug spbm l3vpn sc-arp-info-all

Display debug information for your SPBM Layer 3 VPN configuration.

Syntax

- **show debug spbm l3vpn sc-arp-info-all index <0-1>**

Command Parameters

index <0-1>

Specifies the LSP ID.

Default

None

Command Mode

User EXEC

show debug spbm l3vpn sc-bmac-arp-info

Display debug information for your SPBM Layer 3 VPN configuration.

Syntax

- **show debug spbm l3vpn sc-bmac-arp-info index <0-1>**

Command Parameters

index <0-1>
Specifies the ID.

Default

None

Command Mode

User EXEC

show debug spbm l3vpn sc-bmac-detail

Display debug information for your SPBM Layer 3 VPN configuration.

Syntax

- **show debug spbm l3vpn sc-bmac-detail dest-mac <0x00:0x00:0x00:0x00:0x00:0x00>**

Command Parameters

dest-mac <0x00:0x00:0x00:0x00:0x00:0x00>
Specifies the destination MAC address.

Default

None

Command Mode

User EXEC

show debug spbm l3vpn sc-conn-info

Display debug information for your SPBM Layer 3 VPN configuration.

Syntax

- **show debug spbm l3vpn sc-conn-info dest-mac <0x00:0x00:0x00:0x00:0x00:0x00>**

Command Parameters

dest-mac <0x00:0x00:0x00:0x00:0x00:0x00>

Specifies the destination MAC address.

Default

None

Command Mode

User EXEC

show debug spbm l3vpn sc-info-all

Display debug information for your SPBM Layer 3 VPN configuration.

Syntax

- **show debug spbm l3vpn sc-info-all**

Default

None

Command Mode

User EXEC

show debug spbm l3vpn sc-lsp-info

Display debug information for your SPBM Layer 3 VPN configuration.

Syntax

- **show debug spbm l3vpn sc-lsp-info dest-mac <0x00:0x00:0x00:0x00:0x00:0x00>**

Command Parameters

dest-mac <0x00:0x00:0x00:0x00:0x00:0x00>

Specifies the destination MAC address.

Default

None

Command Mode

User EXEC

show debug spbm l3vpn sc-prefix-avl-tree

Display debug information for your SPBM Layer 3 VPN configuration.

Syntax

- **show debug spbm l3vpn sc-prefix-avl-tree [prefix {A.B.C.D} | vrf WORD<1-16>}**

Command Parameters

prefix {A.B.C.D}

Specifies the IP address.

vrf WORD<1-16>

Specifies the VRF name.

Default

None

Command Mode

User EXEC

show debug spbm l3vpn sc-rt-info

Display debug information for your SPBM Layer 3 VPN configuration.

Syntax

- **show debug spbm l3vpn sc-prefix-avl-tree ip-address {A.B.C.D} mask {A.B.C.D} vrf WORD<1-16>**

Command Parameters

ip-address {A.B.C.D}

Specifies the IP address.

mask {A.B.C.D}

Specifies the mask.

vrf WORD<1-16>

Specifies the VRF name.

Default

None

Command Mode

User EXEC

show debug spbm l3vpn sc-rt-spbm-info

Display debug information for your SPBM Layer 3 VPN configuration.

Syntax

- **show debug spbm l3vpn sc-rt-spbm-info ip-address {A.B.C.D} mask {A.B.C.D} vrf WORD<1-16>**

Command Parameters

ip-address {A.B.C.D}

Specifies the IP address.

mask {A.B.C.D}

Specifies the mask.

vrf WORD<1-16>

Specifies the VRF name.

Default

None

Command Mode

User EXEC

show dvr

Displays a summary of the DvR configuration on a DvR Controller or a DvR Leaf.

Syntax

- **show dvr**

Default

None

Command Mode

User EXEC

Command Output

The **show dvr** command displays the following information on a Controller:

Output field	Description
Domain ID	Displays the domain ID of the DvR domain to which the Controller belongs.
Domain I-SID	Displays the DvR domain I-SID.
Backbone I-SID	Displays the backbone I-SID.
Role	Displays the role of the node in the DvR domain, namely Controller or isolated Controller.
My SYS ID	Displays the MAC address of the Controller.
Operational State	Displays the operational state of the Controller.
GW MAC	Displays the gateway MAC address.
InjectDefaultRouteDisable	Displays whether injection of default routes is disabled on the Controller.
VRRP on DVR I-SIDs	Displays if the Controller sends Virtual Router Redundancy Protocol (VRRP) advertisements on DvR Service Instance Identifiers (I-SIDs).
VRRP Priority	Displays the VRRP priority for the elected VLAN and I-SID.
VRRP Election	Displays the DvR election VLAN and I-SID.

The **show dvr** command displays the following information on a Leaf node:

Output field	Description
Domain ID	Specifies the domain ID of the DvR domain to which the Leaf node belongs.
Domain I-SID	Specifies the DvR domain I-SID. The range is 16678217 to 16678727.
Role	Specifies the role of the node in the DvR domain, namely Leaf.
My SYS ID	Specifies the MAC address of the Leaf node.
Operational State	Specifies the operational state of the Leaf node.
GW MAC	Specifies the gateway MAC address.
Inband Mgmt Clip IP	Specifies the in-band management CLIP IP address.
Virtual Ist local address	Specifies the local IP address of the node, if vIST is configured.
Virtual Ist local subnet mask	Specifies the subnet mask of the local IP address of the node, if vIST is configured.

Output field	Description
Virtual Ist peer address	Specifies the IP address of the peer node, in the vIST pair.
Virtual Ist cluster-id	Specifies the cluster ID if vIST is configured.
Virtual Ist ISID	Specifies the I-SID if vIST is configured.

Examples

The following example displays the output on a DvR Controller:

```
Switch:1>show dvr
==========================================================================
                     DVR Summary Info
==========================================================================
Domain ID                       : 5
Domain ISID                     : 16678219
Backbone ISID                   : 16678216
Role                            : Controller
My SYS ID                       : 00:bb:00:00:81:21
Operational State               : Up
GW MAC                          : 00:00:5e:00:01:25
InjectDefaultRouteDisable(GRT)  : Disabled
VRRP on DVR I-SIDs              : Enabled
VRRP Priority                   : 100
VRRP Election                   : VLAN 10 / I-SID 10
```

The following example displays the output on a DvR isolated Controller:

```
Switch:1>show dvr
==========================================================================
                        DVR Summary Info
==========================================================================
Domain ID                       : 34
Domain ISID                     : 16678250
Backbone                        : isolated
Role                            : Controller
My SYS ID                       : e4:5d:52:3c:64:84
Operational State               : Up
GW MAC                          : 00:00:5e:00:01:25
InjectDefaultRouteDisable(GRT)  : Disabled
VRRP on DVR I-SIDs              : Disabled
VRRP Priority                   : 100
VRRP Election                   :
```

show dvr backbone-entries

Displays the DvR backbone entries.

Syntax

- **show dvr backbone-entries**

Default

None

Command Mode

User EXEC

Command Output

The **show dvr backbone-entries** command displays the following information:

Output field	Description
IP-ADDRESS	Specifies the IPv4 address of the DvR backbone host.
HOST MAC-ADDRESS	Specifies the MAC address of DvR backbone host.
L3VSN ISID	Specifies the Layer 3 VSN I-SID of the DvR backbone host.
L2VSN ISID	Specifies the Layer 2 VSN I-SID of the DvR backbone host.
DOMAIN ID	Specifies the domain ID of the DvR backbone host.
ADV-CONTROLLER	Specifies the host name of the advertising Controller.
NEXT HOP	Specifies the MAC address of the next hop backbone host in the DvR route.

show dvr backbone-entries adv-controller

Displays the DvR backbone entries for a specific advertising controller.

Syntax

- **show dvr backbone-entries adv-controller WORD<1-255>**
- **show dvr backbone-entries adv-controller WORD<1-255> domain-id <1-255>**
- **show dvr backbone-entries adv-controller WORD<1-255> domain-id <1-255> host-mac-address 0x00:0x00:0x00:0x00:0x00:0x00**
- **show dvr backbone-entries adv-controller WORD<1-255> domain-id <1-255> host-mac-address 0x00:0x00:0x00:0x00:0x00:0x00 ipv4 {A.B.C.D}**
- **show dvr backbone-entries adv-controller WORD<1-255> domain-id <1-255> host-mac-address 0x00:0x00:0x00:0x00:0x00:0x00 ipv4 {A.B.C.D} l2isid <1-16777215>**
- **show dvr backbone-entries adv-controller WORD<1-255> domain-id <1-255> host-mac-address 0x00:0x00:0x00:0x00:0x00:0x00 ipv4 {A.B.C.D} l2isid <1-16777215> l3isid <1-16777215>**
- **show dvr backbone-entries adv-controller WORD<1-255> domain-id <1-255> host-mac-address 0x00:0x00:0x00:0x00:0x00:0x00 ipv4 {A.B.C.D} l2isid <1-16777215> l3isid <1-16777215> next-hop WORD<1-255>**

- **show dvr backbone-entries adv-controller WORD<1-255> domain-id <1-255> host-mac-address 0x00:0x00:0x00:0x00:0x00:0x00 ipv4 {A.B.C.D} l2isid <1-16777215> l3isid <1-16777215> next-hop WORD<1-255> nh-as-mac**
- **show dvr backbone-entries adv-controller WORD<1-255> host-mac-address 0x00:0x00:0x00:0x00:0x00:0x00**
- **show dvr backbone-entries adv-controller WORD<1-255> host-mac-address 0x00:0x00:0x00:0x00:0x00:0x00 ipv4 {A.B.C.D}**
- **show dvr backbone-entries adv-controller WORD<1-255> host-mac-address 0x00:0x00:0x00:0x00:0x00:0x00 ipv4 {A.B.C.D} l2isid <1-16777215>**
- **show dvr backbone-entries adv-controller WORD<1-255> host-mac-address 0x00:0x00:0x00:0x00:0x00:0x00 ipv4 {A.B.C.D} l2isid <1-16777215> l3isid <1-16777215>**
- **show dvr backbone-entries adv-controller WORD<1-255> host-mac-address 0x00:0x00:0x00:0x00:0x00:0x00 ipv4 {A.B.C.D} l2isid <1-16777215> l3isid <1-16777215> next-hop WORD<1-255>**
- **show dvr backbone-entries adv-controller WORD<1-255> host-mac-address 0x00:0x00:0x00:0x00:0x00:0x00 ipv4 {A.B.C.D} l2isid <1-16777215> l3isid <1-16777215> next-hop WORD<1-255> nh-as-mac**
- **show dvr backbone-entries adv-controller WORD<1-255> ipv4 {A.B.C.D}**
- **show dvr backbone-entries adv-controller WORD<1-255> ipv4 {A.B.C.D} l2isid <1-16777215>**
- **show dvr backbone-entries adv-controller WORD<1-255> ipv4 {A.B.C.D} l2isid <1-16777215> l3isid <1-16777215>**
- **show dvr backbone-entries adv-controller WORD<1-255> ipv4 {A.B.C.D} l2isid <1-16777215> l3isid <1-16777215> next-hop WORD<1-255>**
- **show dvr backbone-entries adv-controller WORD<1-255> ipv4 {A.B.C.D} l2isid <1-16777215> l3isid <1-16777215> next-hop WORD<1-255> nh-as-mac**
- **show dvr backbone-entries adv-controller WORD<1-255> l2isid <1-16777215>**
- **show dvr backbone-entries adv-controller WORD<1-255> l2isid <1-16777215> l3isid <1-16777215>**
- **show dvr backbone-entries adv-controller WORD<1-255> l2isid <1-16777215> l3isid <1-16777215> next-hop WORD<1-255>**
- **show dvr backbone-entries adv-controller WORD<1-255> l2isid <1-16777215> l3isid <1-16777215> next-hop WORD<1-255> nh-as-mac**
- **show dvr backbone-entries adv-controller WORD<1-255> l3isid <1-16777215>**
- **show dvr backbone-entries adv-controller WORD<1-255> l3isid <1-16777215> next-hop WORD<1-255>**
- **show dvr backbone-entries adv-controller WORD<1-255> l3isid <1-16777215> next-hop WORD<1-255> nh-as-mac**
- **show dvr backbone-entries adv-controller WORD<1-255> next-hop WORD<1-255>**

- **show dvr backbone-entries adv-controller WORD<1-255> next-hop WORD<1-255> nh-as-mac**
- **show dvr backbone-entries adv-controller WORD<1-255> nh-as-mac**

Command Parameters

domain-id <1-255>

Specifies the domain ID for advertising controller.

host-mac-address 0x00:0x00:0x00:0x00:0x00:0x00

Specifies the host MAC address for advertising controller.

ipv4 {A.B.C.D}

Specifies the IPv4 address for advertising controller.

l2isid <1-16777215>

Specifies the Layer 2 I-SID for advertising controller.

l3isid <1-16777215>

Specifies the Layer 3 I-SID for advertising controller.

next-hop WORD<1-255>

Specifies the next hop node for advertising controller.

nh-as-mac

Specifies the next hop node with specific MAC address for advertising controller.

WORD<1-255>

Specifies the advertising controller.

Default

None

Command Mode

User EXEC

show dvr backbone-entries domain-id

Displays the DvR backbone entries for a specific domain ID.

Syntax

- **show dvr backbone-entries domain-id<1-255>**
- **show dvr backbone-entries domain-id<1-255> host-mac-address 0x00:0x00:0x00:0x00:0x00:0x00**
- **show dvr backbone-entries domain-id<1-255> host-mac-address 0x00:0x00:0x00:0x00:0x00:0x00 ipv4 {A.B.C.D}**

- **show dvr backbone-entries domain-id<1-255> host-mac-address 0x00:0x00:0x00:0x00:0x00:0x00 ipv4 {A.B.C.D} l2isid <1-16777215>**
- **show dvr backbone-entries domain-id<1-255> host-mac-address 0x00:0x00:0x00:0x00:0x00:0x00 ipv4 {A.B.C.D} l2isid <1-16777215> l3isid <1-16777215>**
- **show dvr backbone-entries domain-id<1-255> host-mac-address 0x00:0x00:0x00:0x00:0x00:0x00 ipv4 {A.B.C.D} l2isid <1-16777215> l3isid <1-16777215> next-hop WORD<1-255>**
- **show dvr backbone-entries domain-id<1-255> host-mac-address 0x00:0x00:0x00:0x00:0x00:0x00 ipv4 {A.B.C.D} l2isid <1-16777215> l3isid <1-16777215> next-hop WORD<1-255> nh-as-mac**
- **show dvr backbone-entries domain-id<1-255> ipv4 {A.B.C.D}**
- **show dvr backbone-entries domain-id<1-255> ipv4 {A.B.C.D} l2isid <1-16777215>**
- **show dvr backbone-entries domain-id<1-255> ipv4 {A.B.C.D} l2isid <1-16777215> l3isid <1-16777215>**
- **show dvr backbone-entries domain-id<1-255> ipv4 {A.B.C.D} l2isid <1-16777215> l3isid <1-16777215> next-hop WORD<1-255>**
- **show dvr backbone-entries domain-id<1-255> ipv4 {A.B.C.D} l2isid <1-16777215> l3isid <1-16777215> next-hop WORD<1-255> nh-as-mac**
- **show dvr backbone-entries domain-id<1-255> l2isid <1-16777215>**
- **show dvr backbone-entries domain-id<1-255> l2isid <1-16777215> l3isid <1-16777215>**
- **show dvr backbone-entries domain-id<1-255> l2isid <1-16777215> l3isid <1-16777215>**
- **show dvr backbone-entries domain-id<1-255> l2isid <1-16777215> l3isid <1-16777215> next-hop WORD<1-255>**
- **show dvr backbone-entries domain-id<1-255> l2isid <1-16777215> l3isid <1-16777215> next-hop WORD<1-255> nh-as-mac**
- **show dvr backbone-entries domain-id<1-255> l3isid <1-16777215>**
- **show dvr backbone-entries domain-id<1-255> l3isid <1-16777215> next-hop WORD<1-255>**
- **show dvr backbone-entries domain-id<1-255> l3isid <1-16777215> next-hop WORD<1-255> nh-as-mac**
- **show dvr backbone-entries domain-id<1-255> next-hop WORD<1-255>**
- **show dvr backbone-entries domain-id<1-255> next-hop WORD<1-255> nh-as-mac**
- **show dvr backbone-entries domain-id<1-255> nh-as-mac**

Command Parameters

<1-255>

Specifies the domain ID.

host-mac-address 0x00:0x00:0x00:0x00:0x00:0x00

Specifies the host MAC address for domain ID.

ipv4 {A.B.C.D}

Specifies the IPv4 address for domain ID.

l2isid <1-16777215>

Specifies the Layer 2 I-SID for domain ID.

l3isid <1-16777215>

Specifies the Layer 3 I-SID for domain ID.

next-hop WORD<1-255>

Specifies the next hop node for domain ID.

nh-as-mac

Specifies the next hop node with specific MAC address for domain ID.

Default

None

Command Mode

User EXEC

show dvr backbone-entries home

Display the Distributed Virtual Routing (DvR) backbone entries for the home area.

Syntax

- **show dvr backbone-entries home**

Default

None

Command Mode

User EXEC

Command Output

The **show dvr backbone-entries home** command displays the following information:

Output field	Description
IP-ADDRESS	Specifies the IPv4 address of the DvR backbone host in home area.
HOST MAC-ADDRESS	Specifies the MAC address of DvR backbone host in home area.
L3VSN ISID	Specifies the Layer 3 VSN I-SID of the DvR backbone host in home area.
L2VSN ISID	Specifies the Layer 2 VSN I-SID of the DvR backbone host in home area.
DOMAIN ID	Specifies the domain ID of the DvR backbone host in home area.
ADV-CONTROLLER	Specifies the host name of the advertising Controller in home area.
NEXT HOP	Specifies the MAC address of the next hop backbone host in the DvR route.
AREA	Specifies the area as home or remote.
AREA-NAME	Specifies the name of the area.

Example

Displaying the DvR backbone entries for the home area.

```
Switch:1>show dvr backbone-entries home
================================================================================================================================================
                                          DVR Backbone-Entries
================================================================================================================================================
                HOST                L3VSN   L2VSN     DOMAIN
IP-ADDRESS      MAC-ADDRESS         ISID    ISID      ID        ADV-CONTROLLER      NEXT HOP         AREA       AREA-NAME
------------------------------------------------------------------------------------------------------------------------------------------------
192.0.2.11      00:19:01:00:00:01    0      551101    9999       area-0.00.70       area-0.00.70     HOME       area-0.00.20
192.0.2.12      00:19:01:00:00:02    0      551101    9999       area-0.00.70       area-0.00.70     HOME       area-0.00.20
192.0.2.13      00:19:01:00:00:03    0      551101    9999       area-0.00.70       area-0.00.70     HOME       area-0.00.20
192.0.2.14      00:19:01:00:00:04    0      551101    9999       area-0.00.70       area-0.00.70     HOME       area-0.00.20
192.0.2.15      00:19:01:00:00:05    0      551101    9999       area-0.00.70       area-0.00.70     HOME       area-0.00.20

Home:   5 out of 5 Total Num of DVR Backbone Routes displayed
------------------------------------------------------------------------------------------------------------------------------------------------
```

show dvr backbone-entries host-mac-address

Displays the DvR backbone entries for a specific host MAC address.

Syntax

- **show dvr backbone-entries host-mac-address 0x00:0x00:0x00:0x00:0x00:0x00**
- **show dvr backbone-entries host-mac-address 0x00:0x00:0x00:0x00:0x00:0x00 ipv4 {A.B.C.D}**

- **show dvr backbone-entries host-mac-address 0x00:0x00:0x00:0x00:0x00:0x00 ipv4 {A.B.C.D} l2isid <1-16777215>**
- **show dvr backbone-entries host-mac-address 0x00:0x00:0x00:0x00:0x00:0x00 ipv4 {A.B.C.D} l2isid <1-16777215> l3isid <1-16777215>**
- **show dvr backbone-entries host-mac-address 0x00:0x00:0x00:0x00:0x00:0x00 ipv4 {A.B.C.D} l2isid <1-16777215> l3isid <1-16777215>**
- **show dvr backbone-entries host-mac-address 0x00:0x00:0x00:0x00:0x00:0x00 ipv4 {A.B.C.D} l2isid <1-16777215> l3isid <1-16777215> next-hop WORD<1-255>**
- **show dvr backbone-entries host-mac-address 0x00:0x00:0x00:0x00:0x00:0x00 ipv4 {A.B.C.D} l2isid <1-16777215> l3isid <1-16777215> next-hop WORD<1-255> nh-as-mac**
- **show dvr backbone-entries host-mac-address 0x00:0x00:0x00:0x00:0x00:0x00 l2isid <1-16777215>**
- **show dvr backbone-entries host-mac-address 0x00:0x00:0x00:0x00:0x00:0x00 l2isid <1-16777215> l3isid <1-16777215>**
- **show dvr backbone-entries host-mac-address 0x00:0x00:0x00:0x00:0x00:0x00 l2isid <1-16777215> l3isid <1-16777215> next-hop WORD<1-255>**
- **show dvr backbone-entries host-mac-address 0x00:0x00:0x00:0x00:0x00:0x00 l2isid <1-16777215> l3isid <1-16777215> next-hop WORD<1-255> nh-as-mac**
- **show dvr backbone-entries host-mac-address 0x00:0x00:0x00:0x00:0x00:0x00 l3isid <1-16777215>**
- **show dvr backbone-entries host-mac-address 0x00:0x00:0x00:0x00:0x00:0x00 l3isid <1-16777215> next-hop WORD<1-255>**
- **show dvr backbone-entries host-mac-address 0x00:0x00:0x00:0x00:0x00:0x00 l3isid <1-16777215> next-hop WORD<1-255> nh-as-mac**
- **show dvr backbone-entries host-mac-address 0x00:0x00:0x00:0x00:0x00:0x00 next-hop WORD<1-255>**
- **show dvr backbone-entries host-mac-address 0x00:0x00:0x00:0x00:0x00:0x00 next-hop WORD<1-255> nh-as-mac**
- **show dvr backbone-entries host-mac-address 0x00:0x00:0x00:0x00:0x00:0x00 nh-as-mac**

Command Parameters

0x00:0x00:0x00:0x00:0x00:0x00

Specifies the host MAC address.

ipv4 {A.B.C.D}

Specifies the IPv4 address for host MAC address.

l2isid <1-16777215>

Specifies the Layer 2 I-SID for host MAC address.

l3isid <1-16777215>

Specifies the Layer 3 I-SID for host MAC address.

next-hop WORD<1-255>

Specifies the next hop node for host MAC address.

nh-as-mac

Specifies the next hop node with specific MAC address for host MAC address.

Default

None

Command Mode

User EXEC

show dvr backbone-entries ipv4

Displays the DvR backbone entries for a specific IPv4 address.

Syntax

- **show dvr backbone-entries ipv4 {A.B.C.D}**
- **show dvr backbone-entries ipv4 {A.B.C.D} l2isid <1-16777215>**
- **show dvr backbone-entries ipv4 {A.B.C.D} l2isid <1-16777215> l3isid <1-16777215>**
- **show dvr backbone-entries ipv4 {A.B.C.D} l2isid <1-16777215> l3isid <1-16777215> next-hop WORD<1-255>**
- **show dvr backbone-entries ipv4 {A.B.C.D} l2isid <1-16777215> l3isid <1-16777215> next-hop WORD<1-255> nh-as-mac**
- **show dvr backbone-entries ipv4 {A.B.C.D} l3isid <1-16777215>**
- **show dvr backbone-entries ipv4 {A.B.C.D} l3isid <1-16777215> next-hop WORD<1-255>**
- **show dvr backbone-entries ipv4 {A.B.C.D} l3isid <1-16777215> next-hop WORD<1-255> nh-as-mac**
- **show dvr backbone-entries ipv4 {A.B.C.D} next-hop WORD<1-255>**
- **show dvr backbone-entries ipv4 {A.B.C.D} next-hop WORD<1-255> nh-as-mac**
- **show dvr backbone-entries ipv4 {A.B.C.D} nh-as-mac**

Command Parameters

{A.B.C.D}

Specifies the IPv4 address.

l2isid <1-16777215>

Specifies the Layer 2 I-SID for IPv4 address.

l3isid <1-16777215>

Specifies the Layer 3 I-SID for IPv4 address.

next-hop WORD<1-255>

Specifies the next hop node for IPv4 address.

nh-as-mac

Specifies the next hop node with specific MAC address for IPv4 address.

Default

None

Command Mode

User EXEC

show dvr backbone-entries l2isid

Displays the DvR backbone entries for a specific Layer 2 I-SID.

Syntax

- **show dvr backbone-entries l2isid <1-16777215>**
- **show dvr backbone-entries l2isid <1-16777215> l3isid <1-16777215>**
- **show dvr backbone-entries l2isid <1-16777215> l3isid <1-16777215> next-hop WORD<1-255>**
- **show dvr backbone-entries l2isid <1-16777215> l3isid <1-16777215> next-hop WORD<1-255> nh-as-mac**
- **show dvr backbone-entries l2isid <1-16777215> next-hop WORD<1-255>**
- **show dvr backbone-entries l2isid <1-16777215> next-hop WORD<1-255> nh-as-mac**
- **show dvr backbone-entries l2isid <1-16777215> nh-as-mac**

Command Parameters

<1-16777215>

Specifies the Layer 2 I-SID.

l3isid <1-16777215>

Specifies the Layer 3 I-SID for Layer 2 I-SID.

next-hop WORD<1-255>

Specifies the next hop node for Layer 2 I-SID.

nh-as-mac

Specifies the next hop node with specific MAC address for Layer 2 I-SID.

Default

None

Command Mode

User EXEC

show dvr backbone-entries l3isid

Displays the DvR backbone entries for a specific Layer 3 I-SID.

Syntax

- **show dvr backbone-entries l3isid <1-16777215>**
- **show dvr backbone-entries l3isid <1-16777215> next-hop WORD<1-255>**
- **show dvr backbone-entries l3isid <1-16777215> next-hop WORD<1-255> nh-as-mac**
- **show dvr backbone-entries l3isid <1-16777215> nh-as-mac**

Command Parameters

<1-16777215>

Specifies the Layer 3 I-SID.

next-hop WORD<1-255>

Specifies the next hop node for Layer 3 I-SID.

nh-as-mac

Specifies the next hop node with specific MAC address for Layer 3 I-SID.

Default

None

Command Mode

User EXEC

show dvr backbone-entries next-hop

Displays the DvR backbone entries for a specific next hop node.

Syntax

- **show dvr backbone-entries next-hop WORD<1-255>**
- **show dvr backbone-entries next-hop WORD<1-255> nh-as-mac**

Command Parameters

nh-as-mac

Specifies the next hop node with specific MAC address for next-hop.

WORD<1-255>

Specifies the next hop node.

Default

None

Command Mode

User EXEC

show dvr backbone-entries nh-as-mac

Displays the DvR backbone entries for a specific next hop node with a specific MAC address.

Syntax

- **show dvr backbone-entries nh-as-mac**

Default

None

Command Mode

User EXEC

show dvr backbone-entries remote

Display the Distributed Virtual Routing (DvR) backbone entries for the remote area.

Syntax

- **show dvr backbone-entries remote**

Default

None

Command Mode

User EXEC

Command Output

The **show dvr backbone-entries remote** command displays the following information:

Output field	Description
IP-ADDRESS	Specifies the IPv4 address of the DvR backbone host in remote area.
HOST MAC-ADDRESS	Specifies the MAC address of DvR backbone host in remote area.
L3VSN ISID	Specifies the Layer 3 VSN I-SID of the DvR backbone host in remote area.
L2VSN ISID	Specifies the Layer 2 VSN I-SID of the DvR backbone host in remote area.
DOMAIN ID	Specifies the domain ID of the DvR backbone host in remote area.
ADV-CONTROLLER	Specifies the host name of the advertising Controller in remote area.
NEXT HOP	Specifies the MAC address of the next hop backbone host in the DvR route.
AREA	Specifies the area as home or remote.
AREA-NAME	Specifies the name of the area.

Example

Displaying the DvR backbone entries for the home area.

```
Switch:1>show dvr backbone-entries home
================================================================================================================================================
                                          DVR Backbone-Entries
================================================================================================================================================
                HOST                L3VSN   L2VSN     DOMAIN
IP-ADDRESS      MAC-ADDRESS         ISID    ISID      ID        ADV-CONTROLLER      NEXT HOP         AREA       AREA-NAME
------------------------------------------------------------------------------------------------------------------------------------------------
192.0.2.10      00:19:01:00:00:01    0      551101    9999      area-0.00.90       area-0.00.90     REMOTE     area-0.00.30
192.0.2.20      00:19:01:00:00:02    0      551101    9999      area-0.00.90       area-0.00.90     REMOTE     area-0.00.30
192.0.2.30      00:19:01:00:00:03    0      551101    9999      area-0.00.90       area-0.00.90     REMOTE     area-0.00.30
192.0.2.40      00:19:01:00:00:04    0      551101    9999      area-0.00.90       area-0.00.90     REMOTE     area-0.00.30
192.0.2.50      00:19:01:00:00:05    0      551101    9999      area-0.00.90       area-0.00.90     REMOTE     area-0.00.30
```

```
Home:   5 out of 5 Total Num of DVR Backbone Routes displayed
-------------------------------------------------------------------------------------------------------------------------------
```

show dvr backbone-members

Display information about the Distributed Virtual Routing (DvR) backbone members. DvR backbone members are either DvR Controllers or non-DvR BEBs that receive redistributed host routes from all other DvR Controllers in the SPB network.

Syntax

- **show dvr backbone-members**
- **show dvr backbone-members controller**
- **show dvr backbone-members home**
- **show dvr backbone-members non-dvr-beb**
- **show dvr backbone-members remote**

Command Parameters

controller

Displays information about DvR backbone members that are Controllers.

home

Displays information about DvR backbone members in the home area.

non-dvr-beb

Displays information about DvR backbone members that are non-DvR BEBs.

none

Displays information about the DvR backbone members. DvR backbone members are either DvR Controllers or non-DvR BEBs that receive redistributed host routes from all other DvR Controllers in the SPB network.

remote

Displays information about DvR backbone members in the remote area.

Default

None.

Command Mode

User EXEC

Command Output

The **show dvr backbone-members** command displays the following information:

Output field	Description
System Name	Specifies the system name of the DvR backbone member.
Nick-Name	Specifies the nickname of the DvR backbone member.
Nodal MAC	Specifies the nodal MAC address of the DvR backbone member.
Role	Specifies the role of the DvR backbone member.
Domain Id	Specifies the domain ID of the backbone member.
Area	Specifies the area as home or remote.
Area-Name	Specifies the name of the area.

Example

Display information about the DvR backbone members.

```
Switch:1>show isis multi-area dvr redistribute
================================================================================================================
                                        DVR BB Members
================================================================================================================
System Name       Nick-Name    Nodal MAC             Role          Domain Id    Area      Area-Name
----------------------------------------------------------------------------------------------------------------
area-0.00.30      0.00.30      02:00:30:ff:ff:f0     Controller    9999         HOME      area-0.00.20
area-0.00.70      0.00.70      02:00:70:ff:ff:f0     Controller    9999         HOME      area-0.00.20
area-0.00.80      0.00.80      02:00:80:ff:ff:f0     Controller    9999         HOME      area-0.00.20
area-0.00.20      0.00.20      02:00:20:ff:ff:f0     Controller    9999         REMOTE    area-0.00.30
area-0.00.30      0.60.20      b0:ad:aa:42:dc:84     Controller    30           REMOTE    area-0.00.30

Home:   3 out of 3 Total Num of DVR Backbone Members displayed
Remote: 2 out of 2 Total Num of DVR Backbone Members displayed
----------------------------------------------------------------------------------------------------------------
```

show dvr database

Display Distributed Virtual Routing (DvR) database information.

Syntax

- **show dvr database home**
- **show dvr database ipv4 {A.B.C.D}**
- **show dvr database l3isid <1-16777215>**
- **show dvr database nh-as-mac type <1-2>**
- **show dvr database remote**
- **show dvr database vrf WORD <1-16>**
- **show dvr database vrfids WORD<0-512>**

Command Parameters

home

Displays database entries in the home area.

ipv4 {A.B.C.D}

Displays database entries for a specific net.

l3isid <1-16777215>

Displays database entries for a particular Layer 3 I-SID.

nh-as-mac

Displays database entries next hop as mac.

remote

Displays database entries in the remote area.

vrf WORD <1-16>

Specifies a VRF instance by name.

vrfids WORD<0-512>

Specifies a range of VRFs by ID number.

Default

None

Command Mode

User EXEC

Command Output

The **show dvr database** command displays the following information:

Output field	Description
DEST	Specifies the address type of the IPv4 destination address of the DvR database entry.
MASK	Specifies the destination mask of the DvR database entry.
NEXT HOP	Specifies the MAC address of the next hop BEB, in the DvR database entry.
VRFID	Specifies the VRF ID for the database entry.
L3VSN ISID	Specifies the Layer 3 VSN I-SID of the DvR database entry.
L2VSN ISID	Specifies the Layer 2 VSN I-SID of the DvR database entry.

Output field	Description
OUTGOING INTERFACE	Specifies the outgoing interface (port or MLT) of the DvR database entry.
SPB COST	Specifies the SPB cost of the DvR database entry.
PREFIX COST	Specifies the prefix cost of the DvR database entry.
AGE	Specifies the uptime since creation of the DvR database table entry.

show dvr host-entries

Display DvR host-entries information.

Syntax

- **show dvr host-entries domain-id <1-255>**
- **show dvr host-entries ipv4 {A.B.C.D}**
- **show dvr host-entries l2isid <1-16777215>**
- **show dvr host-entries l3isid <1-16777215>**
- **show dvr host-entries nh-as-mac type <1-2>**
- **show dvr host-entries type <1-2>**
- **show dvr host-entries vrf WORD <1-16>**
- **show dvr host-entries vrfids WORD<0-512>**

Command Parameters

domain-id <1-255>

Displays host entries for a particular domain-id.

ipv4 {A.B.C.D}

Displays host entries for a specific net.

l2isid <1-16777215>

Displays host entries for a particular l2isid.

l3isid <1-16777215>

Displays host entries for a particular l3isid.

nh-as-mac

Displays host entries next hop as mac.

type <1-2>

Displays host entries for a particular type - 1= local, 2 = dynamic.

vrf WORD <1-16>

Specifies a VRF instance by name.

vrfids WORD<0-512>

Specifies a range of VRFs by ID number.

Default

None

Command Mode

User EXEC

Command Output

The **show dvr host-entries** command displays the following information:

Output field	Description
IP-ADDRESS	Specifies the IP address of the DvR host entry (IPv4 remote ARP).
HOST MAC-ADDRESS	Specifies the MAC address of the DvR host entry (IPv4 remote ARP).
L3VSN ISID	Specifies the Layer 3 VSN I-SID of the DvR host entry.
VRFID	Specifies the VRF ID of the DvR host entry.
L2VSN ISID	Specifies the Layer 2 VSN I-SID of the DvR host entry.
PORT	Specifies the port of the DvR host entry.
DOMAIN ID	Specifies the DvR domain ID of the DvR host entry.
TYPE	Specifies the host type of the DvR host entry.
NEXT HOP	Specifies the next hop system MAC address of the DvR host entry.

show dvr interfaces

Displays the DvR interfaces on either a Controller or a Leaf node. On Controllers, DvR interfaces are created when you configure IP on a DvR enabled Layer 2 VSN (VLAN, I-SID). Only Controllers display the administrative state of the interfaces because this is where you enable or disable the interfaces. The Leaf nodes display DvR interface information that is pushed from the Controllers, for example, subnet routes or gateway IP addresses for the Layer 2 VSNs.

Syntax

- **show dvr interfaces**
- **show dvr interfaces l3isid <0-16777215>**

- **show dvr interfaces vrf WORD<1-16>**
- **show dvr interfaces vrfids WORD<0-512>**

Command Parameters

l3isid <0-16777215>

Displays the DvR interfaces for the specified Layer 3 I-SID.

none

Displays the DvR interfaces on either a Controller or a Leaf node. On Controllers, DvR interfaces are created when you configure IP on a DvR enabled Layer 2VSN (VLAN, I-SID). Only Controllers display the administrative state of the interfaces because this is where you enable or disable the interfaces. The Leaf nodes display DvR interface information that is pushed from the Controllers, for example, subnet routes or gateway IP addresses for the Layer 2 VSNs.

vrf WORD<1-16>

Displays the DvR interfaces for a specific VRF whose name is specified.

vrfids WORD<0-512>

Displays the DvR interfaces for a specific VRF whose VRF ID is specified.

Default

none

Command Mode

User EXEC

Command Output

The **show dvr interfaces** command displays the following information:

Output field	Description
Interface	Specifies the VLAN IP address (IPv4) of the DvR interface.
Mask	Specifies the subnet mask of the VLAN IP address.
L3ISID	Specifies the Layer 3 I-SID of the DvR interface. The range is 0 to 16777215.
VRFID	Specifies the VRF ID of the DvR interface
L2ISID	Specifies the Layer 2 I-SID of the DvR interface. The range is 1 to 16777215.
VLAN	Specifies the VLAN ID of the DvR interface.
GW IPv4	Specifies the DvR gateway IP address (IPv4).

Output field	Description
Admin State	Specifies the administrative state of the DvR interface. **Note:** This field displays only on a Controller node.
SPBMC State	Specifies the SBPMC state of the DvR interface.
IGMP version	Specifies the version of IGMP running on the DvR interface.

show dvr l3vsn

Displays VRFs corresponding to Layer 3 (routed) VSN I-SIDs on either a Controller or a Leaf node.

Syntax

- **show dvr l3vsn**
- **show dvr l3vsn l3isid <0-16777215>**
- **show dvr l3vsn l3isid <0-16777215> nh-as-mac**
- **show dvr l3vsn vrf WORD<1-16>**
- **show dvr l3vsn vrfids WORD<0-512>**

Command Parameters

l3isid <0-16777215>

Displays the Layer 3 VSN information for the specified Layer 3 I-SID.

none

Displays the Layer 3 VSN information on either a Controller or a Leaf node.

vrf WORD<1-16>

Displays the Layer 3 VSN information for a specific VRF whose name is specified.

vrfids WORD<0-512>

Displays the Layer 3 VSN information for a specific VRF whose VRF ID is specified.

Default

none

Command Mode

User EXEC

Command Output

The **show dvr l3vsn** command displays the following information on a Controller:

Output field	Description
VRF ID	Specifies the VRF ID of the VRF corresponding to the Layer 3 VSN I-SID.
L3VSN ISID	Specifies the Layer 3 VSN I-SID.
VRF NAME	Specifies the VRF name of the VRF corresponding to the Layer 3 VSN I-SID.
INJECT-DEFAULT-ROUTE-DISABLE	Specifies whether injection of default routes is disabled.

The **show dvr l3vsn** command displays the following information on a Leaf node:

Output field	Description
VRF ID	Specifies the VRF ID of the VRF corresponding to the Layer 3 VSN I-SID.
L3VSN ISID	Specifies the Layer 3 VSN I-SID.
VRF NAME	Specifies the VRF name of the VRF corresponding to the Layer 3 VSN I-SID.

show dvr members

Displays the members of all DvR domains, namely the Controllers and Leaf nodes. You can view this information on either a Controller or a Leaf node. Both the Controller and the Leaf node displays those members of the DvR domain to which it belongs.

Syntax

- **show dvr members**
- **show dvr members controller**
- **show dvr members leaf**

Command Parameters

controller

Displays the members of the DvR domain that the specified Controller is a part of.

leaf

Displays the members of the DvR domain that the specified Leaf is a part of.

none

Displays the members of all DvR domains, namely the Controllers and Leaf nodes. You can view this information on either a Controller or a Leaf node. Both

the Controller and the Leaf node displays those members of the DvR domain to which it belongs.

Default

none

Command Mode

User EXEC

Command Output

The **show dvr members** command displays the following information:

Output field	Description
System Name	Specifies the system name of the DvR member (Controller or Leaf node).
Nick-Name	Specifies the nickname of the DvR member.
Nodal MAC	Specifies the nodal MAC address of the DvR member.
Role	Specifies the role of the DvR member within the DvR domain, that is Controller or Leaf.

show dvr redistribute

Displays the DvR domain redistribution information on a Controller or a Leaf node.

Syntax

- **show dvr redistribute**
- **show dvr redistribute vrf WORD<1-16>**
- **show dvr redistribute vrfids WORD<0-512>**

Command Parameters

none

Displays the DvR domain redistribution information on a Controller or a Leaf node.

vrf WORD<1-16>

Displays the DvR domain redistribution information for a VRF whose name is specfied.

vrfids WORD<0-512>

Displays the DvR domain redistribution information for a VRF whose VRF ID is specified.

Default

none

Command Mode

User EXEC

Command Output

The **show dvr redistribute** command displays the following information:

Output field	Description
SOURCE	Specifies the source of the DvR route redistribution.
MET	Specifies the DvR route redistribution metric. The range is 0 to 65535.
MTYPE	Specifies the DvR route redistribution metric type.
ENABLE	Specifies whether DvR route redistribution is enabled on the VRF instance.
RPOLICY	Specifies the route policy for DvR route redistribution.

show dvr routes

Display dvr routes information.

Syntax

- **show dvr routes ipv4 {A.B.C.D}**
- **show dvr routes l3isid <1-16777215>**
- **show dvr routes nh-as-mac type <1-2>**
- **show dvr routes vrf WORD <1-16>**
- **show dvr routes vrfids WORD<0-512>**

Command Parameters

ipv4 {A.B.C.D}

Displays routes for a specific net.

l3isid <1-16777215>

Displays routes for a particular l3isid.

nh-as-mac

Displays routes next hop as mac.

vrf WORD <1-16>

Specifies a VRF instance by name.

vrfids WORD<0-512>

Specifies a range of VRFs by ID number.

Default

None

Command Mode

User EXEC

Command Output

The **show dvr routes** command displays the following information:

Output field	Description
DEST	Specifies the IPv4 destination address of the DvR route.
MASK	Specifies the subnet mask of the IPv4 destination address of the DvR route.
NEXT HOP	Specifies the host name of the next hop BEB, in the DvR route.
VRFID	Specifies the VRF ID of the DvR route.
L3VSN ISID	Specifies the Layer 3 VSN I-SID of the DvR route.
L2VSN ISID	Specifies the Layer 2 VSN I-SID of the DvR route.
TYPE	Specifies the route type of the DvR route.
COST	Specifies the SPB cost of the DvR route.

show eapol auth-stats interface

Display the Authenticator statistics to manage network performance.

Syntax

- **show eapol auth-stats interface**
- **show eapol auth-stats interface gigabitethernet [{slot/port[/sub-port] [-slot/port[/sub-port]][,...][slot/all][all]}]**

Command Parameters

gigabitethernet *{slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

User EXEC

Command Output

The **show eapol auth-stats interface** command displays the following information:

Output field	Description
PORT	Displays the port number in use.
EAP RCVD	Displays the number of EAPoL-EAP frames received by this Authenticator.
AUTH-EAP TX	Displays the number of EAPoL-EAP frames transmitted by the Authenticator.
START RCVD	Displays the number of EAPoL start frames received by this Authenticator.
LOGOFF RCVD	Displays the number of EAPoL logoff frames received by this Authenticator.
INVALID FRAMES	Displays the number of EAPoL frames received by this Authenticator in which the frame type is not recognized.
LENGTH ERROR	Displays the number of EAPoL frames received by this Authenticator in which the Packet Body Length field is invalid.
LAST-RX VER	Displays the last received version of the EAPoL frame by this Authenticator.
LAST-RX SRC	Displays the source MAC address of the last received EAPoL frame by this Authenticator.

show eapol port

Display Extensible Authentication Protocol (EAPoL) information for the specified port or interface.

Syntax

- **show eapol port {slot/port[sub-port]}**
- **show eapol port interface gigabitEthernet [{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]**
- **show eapol port interface vlan <1-4059> [{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]**

Command Parameters

{slot/port[/sub-port]}

Identifies a single slot and port. If your platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

gigabitethernet *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

User EXEC

show eapol sessions

Display Extensible Authentication Protocol (EAPoL) and non-Extensible Authentication Protocol (NEAP) authentication sessions on the switch.

Syntax

- **show eapol sessions eap [verbose] [vlan <1-4059>] [{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]**
- **show eapol sessions neap [verbose] [vlan <1-4059>] [{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

verbose

Displays non-EAPoL client MAC information.

Default

None

Command Mode

User EXEC

show eapol session-stats interface

Display the port Extensible Authentication Protocol (EAPoL) authenticator session statistics for the specified interface type.

Syntax

- **show eapol session-stats interface**

- **show eapol session-stats interface gigabitethernet [{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]**

Command Parameters

gigabitethernet *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

User EXEC

Command Output

The **show eapol session-stats interface** command displays the following information:

Output field	Description
PORT NUM	Displays the port number in use.
MAC	Displays the MAC address of the client.
SESSION ID	Displays a unique identifier for the session.
AUTHENTIC METHOD	Displays the authentication method (remote or local RADIUS server) used to establish the session.
SESSION TIME	Displays the duration of the session (in seconds).
TERMINATE CAUSE	Displays the reason the session terminated.
USER NAME	Displays the user name of the Supplicant Authenticator Port Access Entity (PAE).

show eapol system

Display the current Extensible Authentication Protocol (EAPoL) configuration on the switch.

Syntax

- **show eapol system**

Default

None

Command Mode

User EXEC

Command Output

The **show eapol system** command displays the following information:

Output field	Description
eap	Displays whether system authentication control is enabled. EAP is disabled by default.
Eapol Version	Displays the EAP version on the switch.
non-eap-pwd-fmt	Displays the password attribute format for non EAP RADIUS authentication.
non-eap-pwd-fmt key	Displays the attribute key string for non EAP RADIUS password. The range is 0– 32 characters.
non-eap-pwd-fmt padding	Displays whether the padding option is enabled or disabled.
auto-isid-offset status	Displays the status of the Auto I-SID Offset feature.
auto-isid-offset value	Displays the Auto I-SID Offset value. The range is 0-15995903.

Examples

The following examples display the EAPol configuration on the switch.

```
Switch:1>show eapol system

==========================================================================
                                  Eapol System
==========================================================================
                       eap : enabled
             Eapol Version : 3
          non-eap-pwd-fmt : mac-addr
      non-eap-pwd-fmt key : ******
  non-eap-pwd-fmt padding : disabled
```

```
  auto-isid-offset status : disabled
   auto-isid-offset value : 15980000
Switch:1>show eapol system
================================================================
                                  Eapol System
================================================================
                     eap : disabled
           Eapol Version : 3
         non-eap-pwd-fmt : mac-addr
     non-eap-pwd-fmt key : ******
 non-eap-pwd-fmt padding : disabled
 auto-isid-offset status : disabled
 auto-isid-offset value  : 1000
```

show endpoint-tracking

Display the global status of Endpoint Tracking on the switch, and the configured I-SID offset value, if applicable.

Syntax

- **show endpoint-tracking**

Default

None

Command Mode

User EXEC

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

Command Output

The **show endpoint-tracking** command displays the following information:

Output field	Description
endpoint tracking status	Specifies whether Endpoint Tracking is globally enabled or disabled on the switch.
auto-isid-offset value	Specifies the configured I-SID offset value used to calculate an I-SID value for a switched UNI when no I-SID value is provided by the RADIUS server.

Output field	Description
auto-isid-offset enabled	Specifies whether the I-SID offset value is globally enabled or disabled on the switch.
visibility-mode status	Specifies whether visibility mode is globally enabled or disabled on the switch.

Example

The following example displays a switch with Endpoint Tracking globally enabled, and an I-SID offset value configured and enabled.

```
Switch:1>show endpoint-tracking
================================================================================
                          Endpoint Tracking Configuration
================================================================================

                             endpoint tracking status : ENABLED
                               auto-isid-offset value : 15990000
                             auto-isid-offset enabled : ENABLED
                               visibility-mode status : ENABLED
```

show endpoint-tracking bindings

Display the Endpoint Tracking VLAN:ISID binding information for the switch, for ports, or for MLT or SMLT interfaces.

Syntax

- **show endpoint-tracking bindings**
- **show endpoint-tracking bindings gigabitEthernet {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **show endpoint-tracking bindings mlt <1-512>**
- **show endpoint-tracking bindings summary**

Command Parameters

gigabitethernet *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

mlt <1-512>

Specifies the MLT ID.

summary

Provides a summary of the total number and status of bindings for all interfaces.

Default

None

Command Mode

User EXEC

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

Command Output

The **show endpoint-tracking bindings** command displays the following information:

Output field	Description
PORT/MLT	Specifies the port number or MLT ID.
INDEX	Specifies the interface index of the selected port or MLT.
TOTAL	Specifies the total number of bindings for a port or MLT.
ACCEPTED	Specifies the total number of bindings in Accepted status for a port or MLT.
REJECTED	Specifies the total number of bindings in Rejected status for a port or MLT.
PENDING	Specifies the total number of bindings in Pending status for a port or MLT.
TIMEOUT	Specifies the total number of bindings in Timeout status for a port or MLT.
SERVER-UNREACHABLE	Specifies the total number of bindings in serverNotConfigured status for a port or MLT.
MAC	Specifies the MAC address that corresponds to the VLAN:ISID binding.

Output field	Description
STATUS	Specifies the Endpoint Tracking data binding status as follows: • pending: indicates that a request has been sent to the RADIUS server • accept: indicates that the RADIUS server has successfully returned the request • reject: indicates that the RADIUS server has rejected the request • timeout: indicates that the RADIUS server request has timed out. The entry is deleted if it remains in this state for 15 minutes. • serverNotConfigured: indicates that the RADIUS server is not configured for Endpoint Tracking. The entry is deleted if it remains in this state for 15 minutes.
VLAN ID	Specifies the VLAN ID.
ISID	Specifies the I-SID value, either provided by the RADIUS server, or calculated using the VLAN ID plus the configured I-SID offset value.
SOURCE	Specifies how the I-SID value is provided, as follows: • radius: provided by the RADIUS server • autoconfig: calculated using the VLAN ID plus the configured endpoint-tracking offset value • config: from MAC addresses learned on a static S-UNI
TIMEOUT	Specifies the timeout period that is applied to the MAC in the bindings table when the MAC is aged out. If the MAC is in timeout state (there is no response from the RADIUS server), the timeout triggers immediately with a 15 minute period. Otherwise, the default timeout is one day, and triggers the moment the MAC ages out from the VLAN/I-SID bridge forwarding database (FDB) table. The default timeout of one day can be overridden by the RADIUS server if the Session-Timeout attribute is configured and returned.
TIME REMAINING	Specifies the time remaining until the Endpoint Tracking data binding entry expires.

Examples

The following example displays the global data binding information for Endpoint Tracking ports and MLT interfaces on a switch.

```
Switch:1>show endpoint-tracking bindings
================================================================================================================================
                                          Endpoint Tracking Bindings
================================================================================================================================
PORT/MLT  INDEX  MAC               STATUS   VLAN ID  ISID     SOURCE       TIMEOUT             TIME REMAINING
--------------------------------------------------------------------------------------------------------------------------------
1/10      201    00:00:00:00:1b:01  accept   27       15990027 autoconfig   0 day(s), 00:01:40  0 day(s), 00:00:00
1/10      201    00:00:00:00:1b:02  accept   27       15990027 autoconfig   0 day(s), 00:01:40  0 day(s), 00:00:00
1/10      201    00:00:00:00:1b:03  accept   27       15990027 autoconfig   0 day(s), 00:01:40  0 day(s), 00:00:00
1/10      201    00:00:00:00:1b:04  accept   27       15990027 autoconfig   0 day(s), 00:01:40  0 day(s), 00:00:00
```

```
1/10      201    00:00:00:00:1b:05  accept   27       15990027 autoconfig   0 day(s), 00:01:40  0 day(s), 00:00:00

5 out of 5 Total Num of Endpoint Tracking bindings displayed.
```

The following example displays a summary of the binding information for Endpoint Tracking ports and MLT interfaces on a switch.

```
Switch:1>show endpoint-tracking bindings summary
================================================================================================================================
                                              Endpoint Tracking Bindings
================================================================================================================================
PORT/MLT  INDEX  TOTAL   ACCEPTED   REJECTED   PENDING   TIMEOUT   SERVER-UNREACHABLE
--------------------------------------------------------------------------------------------------------------------------------
1/10      201    5       5          0          0         0         0
```

show endpoint-tracking interfaces

Display the status of Endpoint Tracking on interfaces. Only interfaces on which Endpoint Tracking has been created are shown.

Syntax

- **show endpoint-tracking interfaces**
- **show endpoint-tracking interfaces gigabitEthernet {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **show endpoint-tracking interfaces mlt <1-512>**

Command Parameters

gigabitethernet *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

mlt <1-512>

Specifies the MLT ID.

Default

None

Command Mode

User EXEC

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

Command Output

The **show endpoint-tracking interfaces** command displays the following information:

Output field	Description
PORT NUM	Specifies the slot and port number, or the MLT ID.
INDEX	Specifies the interface index of the port or MLT.
STATUS	Specifies whether Endpoint Tracking is enabled or disabled on the port or MLT. Disabled specifies that Endpoint Tracking has been created but not enabled, and Enabled specifies that Endpoint Tracking has been created and enabled.

Example

The following example displays the Endpoint Tracking status of ports and MLT interfaces. In this example, two ports have Endpoint Tracking created and enabled, one MLT has Endpoint Tracking created and enabled, and one MLT has Endpoint Tracking created but not yet enabled.

```
Switch:1>show endpoint-tracking interfaces
================================================================================================

                                  Endpoint Tracking Interfaces
================================================================================================
PORT
NUM       INDEX      STATUS
------------------------------------------------------------------------------------------------

1/1         192      Enabled
1/10        201      Enabled
MLT-2       6145     Enabled
MLT-5       6148     Disabled
------------------------------------------------------------------------------------------------
4 out of 4 Total Num of Endpoint Tracking interfaces displayed
------------------------------------------------------------------------------------------------
```

show energy-saver eee statistics

Display Energy Efficient Ethernet (EEE) statistics for all ports, or for a specific port.

Syntax

- **show energy-saver eee statistics**
- **show energy-saver eee statistics {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

User EXEC

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

Command Output

The **show energy-saver eee statistics** command displays the following information:

Output field	Description
PortId	Specifies the port number.
EEE Status	Specifies whether EEE is enabled or disabled on the port.
Tx LPI Events	Specifies the number of times EEE has triggered Low Power Idle (LPI) on the transmitting side.
Tx Idle Duration	Specifies the total amount of time, in microseconds, during which the transmitting side was in Low Power Idle (LPI).

Output field	Description
Rx LPI Events	Specifies the number of times EEE has triggered Low Power Idle (LPI) on the receiving side.
Rx Idle Duration	Specifies the total amount of time, in microseconds, during which the receiving side was in Low Power Idle (LPI).

Example

```
Switch:1>show energy-saver eee statistics
=============================================================================================
                                EEE Port Status
=============================================================================================
          EEE           Tx          Tx              Rx           Rx
PortId    Status        LPI Events  Idle Duration   LPI Events   Idle Duration
                                    (micro seconds)              (micro seconds)
---------------------------------------------------------------------------------------------
1/1       enabled       847         963657920       115          965100020
```

show fa

Display the Fabric Attach configuration status.

Syntax

- **show fa**

Default

None

Command Mode

User EXEC

Command Output

The **show fa** command displays the following information:

Output field	Description
FA Service	Specifies whether Fabric Attach is enabled or disabled.
FA Element Type	Specifies the Fabric Attach element type.
FA Assignment Timeout	Specifies the Fabric Attach assignment time-out in seconds.
FA Discovery Timeout	Specifies the Fabric Attach discovery time-out in seconds.
FA Provision Mode	Specifies the Fabric Attach provision mode.

Example

The following example displays the Fabric Attach configuration.

```
Switch:1>show fa

================================================================================
                           Fabric Attach Configuration
================================================================================
                              FA Service : enabled
                         FA Element Type : server
                    FA Assignment Timeout : 240
                     FA Discovery Timeout : 240
                        FA Provision Mode : spbm
```

show fa agent

Display Fabric Attach agent information.

Syntax

- **show fa agent**

Command Parameters

config

Display Fabric Attach agent information.

Default

None

Command Mode

User EXEC

Command Output

The **show fa agent** command displays the following information:

Output field	Description
FA Service	Specifies whether Fabric Attach is enabled or disabled.
FA Element Type	Specifies the Fabric Attach element type.
FA Assignment Timeout	Specifies the Fabric Attach assignment time-out in seconds.
FA Discovery Timeout	Specifies the Fabric Attach discovery time-out in seconds.
FA Provision Mode	Specifies the Fabric Attach provision mode.

Example

The following example displays the Fabric Attach agent information.

```
Switch:1>show fa agent

================================================================================
                           Fabric Attach Configuration
================================================================================
                              FA Service : enabled
                         FA Element Type : server
                    FA Assignment Timeout : 240
                     FA Discovery Timeout : 240
                        FA Provision Mode : spbm
```

show fa assignment

Display Fabric Attach ISID-to-VLAN assignments.

Syntax

- **show fa assignment [{slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]}]**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

User EXEC

Command Output

The **show fa assignment** command displays the following information:

Output field	Description
Interface	Specifies the interface identifier of the I-SID-to-VLAN assignment.
I-SID	Specifies the I-SID value of the I-SID-to-VLAN assignment.
Vlan	Specifies the VLAN ID component of the I-SID-to-VLAN assignment.
State	Specifies the current state of the I-SID-to-VLAN assignment as one of the following values: • Other • Pending • Active • Rejected
Origin	Specifies the origin information of the I-SID-to-VLAN assignment.
I-SID Name	Specifies the I-SID name.

Example

The following example displays the Fabric Attach assignment information.

```
Switch:>show fa assignment
================================================================================
                          Fabric Attach Assignment Map
================================================================================
Interface  I-SID      Vlan       State      Origin    I-SID Name
--------------------------------------------------------------------------------
1/1        2          2          active     proxy     ISID-2
1/2        3          3          active     proxy     ISID-3
1/2        4          4          active     proxy     ISID-4
1/3        5          5          reject     proxy     ISID-5
--------------------------------------------------------------------------------

 4 out of 4 Total Num of fabric attach assignment mappings displayed

--------------------------------------------------------------------------------
```

show fa elements

Display Fabric Attach discovery elements.

Syntax

- **show fa elements [{slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]}]**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

User EXEC

Example

The following example output displays the Fabric Attach discovery elements.

```
Switch:1>show fa elements

================================================================================
                        Fabric Attach Discovery Elements
================================================================================
                          MGMT                                          ELEM ASGN
PORT   TYPE               VLAN STATE  SYSTEM ID                         AUTH AUTH
--------------------------------------------------------------------------------
1/1    proxyRing          0    T / S  c8:66:5d:f6:d7:20:00:00:00:09    AP   N
1/5    proxy              710  T / S  50:61:84:ee:8c:00:20:00:00:01    AP   AP
1/6    proxy              710  T / S  50:61:84:ee:8c:00:20:00:00:01    AP   AP

================================================================================
                      Fabric Attach Authentication Detail
================================================================================
       ELEM OPER                      ASGN OPER
PORT   AUTH STATUS                    AUTH STATUS
--------------------------------------------------------------------------------
1/1    successAuth                    sucessAuth
1/5    successAuth                    successAuth
1/6    successAuth                    successAuth

State Legend: (Tagging/AutoConfig)
T= Tagged,    U= Untagged,    D= Disabled,    S= Spbm,    V= Vlan,    I= Invalid

Auth Legend:
AP= Authentication Pass,  AF= Authentication Fail,
NA= Not Authenticated,  N= None

--------------------------------------------------------------------------------
```

```
3 out of 3 Total Num of fabric attach discovery elements displayed
```

show fa interface

Display Fabric Attach configuration on all interfaces.

Syntax

- **show fa interface**

Default

None

Command Mode

User EXEC

Command Output

The **show fa interface** command displays the following information:

Output field	Description
INTERFACE	Specifies the interface (port or MLT) on which Fabric Attach is configured.
SERVER STATUS	Specifies the current state of the Fabric Attach port. It is either enabled or disabled.
MGMT ISID	Specifies the Fabric Attach management I-SID for the associated port. A zero value indicates that the management I-SID is not specified for the interface.
MGMT CVID	Specifies the Fabric Attach management customer VLAN ID (C-VID) for the interface. A zero value indicates that no C-VID is specified for the interface.
MSG AUTH STATUS	Specifies the Fabric Attach message authentication status on the port.
MSG AUTH KEY	Specifies the Fabric Attach message authentication key for the associated port.
TCN	Specifies whether Fabric Attach Ring Topology Change Notification (TCN) processing is enabled or disabled on the port or MLT. The default is disabled.
ORIGIN	Specifies the origin of the Fabric Attach port, either manually configured through CLI or EDM or dynamically configured through Auto-sense.

Example

The following example displays the Fabric Attach configuration on all interfaces.

```
Switch:1>show fa interface

================================================================================
                            Fabric Attach Interfaces
================================================================================
INTERFACE    SERVER   MGMT     MGMT     MSG AUTH MSG AUTH  TCN   ORIGIN
             STATUS   ISID     CVID     STATUS   KEY
--------------------------------------------------------------------------------
Port 1/1    enabled  0        0        enabled  ****
Port1/10    enabled  0        0        enabled  ****
Port1/6     enabled  0        0        enabled  ****
Port1/11    enabled  0        0        enabled  ****
Mlt2        enabled  0        0        enabled  ****

--------------------------------------------------------------------------------
 5 out of 5 Total Num of fabric attach interfaces displayed
--------------------------------------------------------------------------------
```

show fa interface disabled-auth

Display Fabric Attach interfaces with authentication disabled.

Syntax

- **show fa interface disabled-auth**

Default

None

Command Mode

User EXEC

show fa interface enabled-auth

Display Fabric Attach interfaces with authentication enabled.

Syntax

- **show fa interface enabled-auth**

Default

None

Command Mode

User EXEC

show fa interface mlt

Display Fabric Attach interfaces on an MLT.

Syntax

- **show fa interface mlt**
- **show fa interface mlt <1-512>**

Command Parameters

<1-512>

Display Fabric Attach interfaces on an MLT.

Default

None

Command Mode

User EXEC

show fa interface port

Display Fabric Attach interfaces on a port.

Syntax

- **show fa interface port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

User EXEC

show fa statistics

Display global level Fabric Attach statistics.

Syntax

- **show fa statistics [{slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]}] [summary]**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

summary

Display global level Fabric Attach statistics.

Default

None

Command Mode

User EXEC

show fa zero-touch-client

Display fabric attach zero touch client information

Syntax

- **show fa zero-touch-client**

Default

None

Command Mode

User EXEC

show fdb-filter

Show forwarding database filter information. This command does not apply to all hardware platforms.

Syntax

- **show fdb-filter**

Default

None

Command Mode

User EXEC

show ftp-access

Show the maximum FTP sessions.

Syntax

- **show ftp-access**

Default

None

Command Mode

User EXEC

Command Output

The **show ftp-access** command displays the following information:

Output field	Description
max ipv4 sessions	Displays the maximum number of permitted IPv4 FTP sessions.
max ipv6 sessions	Displays the maximum number of permitted IPv6 FTP sessions.

Example

The following example displays the command output.

```
Switch:1#show ftp-access
max ipv4 sessions : 4
max ipv6 sessions : 4
```

show hosts

Query the DNS host for information about host addresses. You can enter either a hostname or an IP address. If you enter the hostname, this command shows the IP address corresponding to the hostname and if you enter an IP address, this command shows the hostname for the IP address.

Syntax

- **show hosts WORD<0-256>**

Command Parameters

WORD<0-256>

Specifies one of the following: the name of the host DNS server as a string of 0-256 characters, the IP address of the host DNS server in a.b.c.d format, or the IPv6 address of the host DNS server in hexadecimal format (string length 0-46).

Default

None

Command Mode

User EXEC

show ike certificate-identity

Display the X.509 V3 digital certificate subject name.

Syntax

- **show ike certificate-identity**

Command Parameters

Default

None

Command Mode

User EXEC

show ike policy

Display the configured IKE policies

Syntax

- **show ike policy**
- **show ike policy WORD<1–32> laddr WORD<1–256>**
- **show ike policy WORD<1–32> laddr WORD<1–256> raddr WORD<1–256>**

Command Parameters

laddr WORD<1–256>

Specifies the local IPv4 or IPv6 address.

raddr WORD<1–256>

Specifies the remote IPv4 or IPv6 address.

WORD<1–32>

Specifies the name of the policy to be displayed.

Default

None

Command Mode

User EXEC

Command Output

The **show ike policy** command displays the following information:

Output field	Description
Policy Name	Specifies the name of the policy that is displayed.
Addr Type	Specifies whether the IP address is an IPv4 or IPv6 address.
Local Address	Specifies the local IPv4 or IPv6 address.
Remote Address	Specifies the remote IPv4 or IPv6 address.
Profile Name	Specifies the name of the profile.
Profile version	Specifies the version of the profile, version 1 or version 2.
Auth-Method	Specifies the authentication method. The supported values are digital-certificate and pre-shared-key.
Pre-Shared Key	Specifies the pre-shared key value.
Revocation-Check Method	Specifies the revocation check method as OCSP, CRL or none.
Peer-identity name	Specifies peer identity name for IKE phase 1.
DPD Timeout	Specifies the Dead-peer detection timeout in seconds. The supported value ranges from 1 to 4294967295 seconds.
Admin State	Specifies whether the IKE admin state is enabled or disabled.
Oper State	Specifies whether the policy is operational or not. The values are up and down.
P2 PFS	Specifies whether Phase 2 perfect forward secrecy is enabled or not.
Use IKE DH Grp	Specifies whether IKE can use the DH group or not. The values are enable and disable.
DH Group	Specifies the type of DH group selected. The supported values are modp768, modp1024, and modp2048.
IntfId	Specifies the ID of the interface on which the policy is applied.

show ike profile

Display IKEv2 profiles.

Syntax

- **show ike profile**
- **show ike profile WORD<1-32>**

Command Parameters

WORD<1–32>

Specifies the name of the profile to be displayed.

Default

None

Command Mode

User EXEC

Command Output

The **show ike profile** command displays the following information:

Output field	Description
Name	Specifies the name of the IKE Phase 1 profile.
Hash Algo	Specifies the hash authorization algorithm. The supported values are md5, sha, and sha256.
Encrypt Algo	Specifies the crytographic algorithm. The supported values are desCbc, 3DesCbc, and aesCbc.
Encrypt Key Len	Specifies the length of the encryption key. The supported values are 128, 192 and 256.
DH Group	Specifies the Diffe-Hellman (DH) group. The supported values are modp768, modp1024, and modp2048.
Exchange Mode	Specifies the IKE mode. The supported mods are main mode and aggressive mode.
Lifetime seconds	Specifies the lifetime value in seconds.

show ike sa

Display security associations.

Syntax

- **show ike sa**
- **show ike sa version v1 WORD<1-32> laddr WORD<1-256> raddr WORD<1-256>**
- **show ike sa version v2 WORD<1-32> laddr WORD<1-256> raddr WORD<1-256>**

Command Parameters

laddr WORD<1–256>

Specifies the local IPv4 or IPv6 address.

raddr WORD<1–256>

Specifies the remote IPv4 or IPv6 address.

version v1 WORD<1–32>

Specifies the local IPv4 or IPv6 address for IKE Phase 1, version 1 SA.

version v2 WORD<1–32>

Specifies the local IPv4 or IPv6 address for IKE Phase 1, version 2 SA.

Default

None

Command Mode

User EXEC

show ike v2-profile

Display IKE profiles.

Syntax

- **show ike v2-profile**
- **show ike v2-profile WORD<1-32>**

Command Parameters

WORD<1–32>

Specifies the name of the profile to be displayed.

Default

None

Command Mode

User EXEC

Command Output

The **show ike v2-profile** command displays the following information:

Output field	Description
Name	Specifies the name of the IKEv2 profile.
Hash Algo	Specifies the hash authorization algorithm. The supported values are MD5, SHA1, and SHA256.
Encrypt Algo	Specifies the crytographic algorithm. The supported values are DES, 3DES, and AES.
Encrypt Key Length	Specifies the length of the encryption key. The supported values are 128, 192, and 256.

Output field	Description
DH Group	Specifies the Diffe-Hellman (DH) group. The supported values are modp768, modp024, and modp048.
Integrity Algorithm	Specifies IKE SA integrity algorithms supported in IKEv2.
Exchange Mode	Specifies the IKE mode. The supported mods are main mode and aggressive mode.
Lifetime seconds	Specifies the lifetime value in seconds.

show io

Shows IO information.

Syntax

- **show io control**
- **show io l2-tables [file WORD<1-99>]**
- **show io l3-tables [file WORD<1-99> | multipath | verbose]**

Command Parameters

control

Shows IO internal control statistics. Only run this command when requested by GTAC (Global Technical Assistance Center).

l2-tables [file WORD<1-99>]

Shows the Layer 2 tables, including EEPROM data for ports with an inserted optical pluggable component. Specify an optional filename to view the contents of a specific file.

l3-tables [file WORD<1-99> | multipath]

Shows the Layer 3 tables. Specify an optional filename to view the contents of a specific file.

Use the optional *multipath* parameter to see multipath egress objects. For example, view this information if you need to know how many ECMP resources are in use.

verbose

Specifies verbose mode, which provides a detailed output.

Default

None

Command Mode

User EXEC

show io filters

Shows IO filters.

Syntax

- **show io filters all**
- **show io filters bcm**
- **show io filters bcm [entry <1-18000>][group <1-35000>]**
- **show io filters statistics**
- **show io filters voss**

Command Parameters

all

Shows software and hardware information about filters.

bcm

Shows a specific hardware information about filters.

entry <1-18000>

Shows hardware information for a specific entry.

group<1-35000>

Shows hardware information for a specific filter group.

statistics

Shows all statistics filters.

voss

Shows the software information about filters.

Default

None

Command Mode

User EXEC

show io resources

Shows IO resources information.

Syntax

- **show io resources {filter | interface | l3-defip-count | l3-entry-count | mirror | model | nlb | qos-group | spbm-uni-detail |spbm-uni-show | verbose | vxlan-vtep-count}**

Command Parameters

filter

Shows the IO resource manager filter.

interface

Shows the IO resource manager interface.

l3-defip-count

Shows the IO resource manager Layer3 defip count.

l3-entry-count

Shows the IO resource manager Layer3 entry count.

mirror

Shows the IO resource manager mirror.

model

Shows the IO resource manager slice statistics summary.

nlb

Shows the IO resource manager NLB table.

qos-group

Shows the IO resource manager QoS group usage.

spbm-uni-detail

Shows the IO resource manager SPBM unicast detail.

spbm-uni-show

Shows the IO resource manager SPBM unicast.

verbose

Shows the IO resource manager additional Layer3 information (detailed output).

vxlan-vtep-count

Shows the IO resource manager VXLAN VTEP table.

Default

None

Command Mode

User EXEC

show i-sid

Show all configured service instance identifiers (I-SID) along with their types, ports/mlt.

Syntax

- **show i-sid [<1-16777215>]**

Command Parameters

<1-16777215>

Specifies a service instance identifier (I-SID).

Default

None

Command Mode

User EXEC

Command Output

The **show i-sid** command displays the following information:

Output field	Description
I-SID ID	Indicates the I-SID IDs.
I-SID TYPE	Indicated the I-SID type. • T-UNI: Transparent Port UNI service. • ELAN: any to any service (switched service). • CVLAN: CVLAN based service.
VLANID	Indicates the VLAN IDs.
PORT INTERFACES	Indicates the port interface.
MLT INTERFACES	Indicates the MLT interface.
ORIGIN	Indicates how the I-SID is discovered.
ISID NAME	Indicates the I-SID names.

Example

View I-SID information.

```
Switch:1#show i-sid
================================================================================================================
                                                Isid Info
================================================================================================================
ISID       ISID                  PORT             MLT           ORIGIN                   ISID
ID         TYPE      VLANID      INTERFACES       INTERFACES                             NAME
----------------------------------------------------------------------------------------------------------------
```

```
15999999   ELAN     4048          -               -            C  ---  -  ---  -  -      Onboarding I-SID
16777001   ELAN     N/A           -               -            C  ---  -  ---  -  -      FAN-ISID

c: customer vid    u: untagged-traffic

All 2 out of 2 Total Num of i-sids displayed

ORIGIN Legend:
C: manually configured; D: discovered by FA or EPT
M: FA management; E: discovered by EAP; A: auto-sense; R: multi-area redist
l: discover by local switch  r: discover by remote VIST switch
```

show i-sid elan

Show the elan (Switched UNI) based service instance identifiers (I-SID).

Syntax

- **show i-sid elan**

Default

None

Command Mode

User EXEC

Command Output

The **show i-sid elan** command displays the following information:

Output field	Description
I-SID ID	Indicates the I-SID IDs.
I-SID TYPE	Indicated the I-SID type. • T-UNI: Transparent Port UNI service. • ELAN: any to any service (switched service). • CVLAN: CVLAN based service.
VLANID	Indicates the VLAN IDs.
PORT INTERFACES	Indicates the port interface.
MLT INTERFACES	Indicates the MLT interface.
ORIGIN	Indicates how the I-SID is discovered.
ISID NAME	Indicates the I-SID names.

Example

View I-SID elan information.

```
Switch:1>show i-sid elan
```

```
================================================================================================
                                    Isid Info
================================================================================================
ISID      ISID              PORT               MLT         ORIGIN                    ISID
ID        TYPE     VLANID   INTERFACES         INTERFACES                            NAME
------------------------------------------------------------------------------------------------
27        ELAN     N/A      c4000:1/1,2/1      -           C  ---  -  ---  -         ISID-27
38        ELAN     N/A      c4000:1/2,2/2      -           C  ---  -  ---  -         ISID-38
270       ELAN     N/A      c4001:1/1,2/1      -           C  ---  -  ---  -         ISID-270
307       ELAN     N/A      c307:1/5,2/1       -           C  ---  -  ---  -         ISID-307
308       ELAN     N/A      c308:1/6,2/1       -           C  ---  -  ---  -         ISID-308
309       ELAN     N/A      c309:1/1,2/1       -           C  ---  -  ---  -         ISID-309
310       ELAN     N/A      c310:1/2,2/2       -           C  ---  -  ---  -         ISID-310
311       ELAN     N/A      c311:1/3,2/2       -           C  ---  -  ---  -         ISID-311
312       ELAN     N/A      c312:1/4,2/2       -           C  ---  -  ---  -         ISID-312
317       ELAN     N/A      c317:1/7,2/1       -           C  ---  -  ---  -         ISID-317
318       ELAN     N/A      c318:1/8,2/1       -           C  ---  -  ---  -         ISID-318
319       ELAN     N/A      c319:1/9,2/1       -           C  ---  -  ---  -         ISID-319
320       ELAN     N/A      c320:1/10,2/1      -           C  ---  -  ---  -         ISID-320

--More-- (q = quit)

c: customer vid    u: untagged-traffic

13 out of 77 Total Num of Elan displayed

ORIGIN Legend:
C: manually configured; D: discovered by FA or EPT
M: FA management; E: discovered by EAP; A: auto-sense
l: discover by local switch  r: discover by remote VIST switch
```

show i-sid elan-transparent

Show the elan-transparent (Transparent UNI) based service instance identifiers (I-SID).

Syntax

- **show i-sid elan-transparent**

Default

None

Command Mode

User EXEC

Command Output

The **show i-sid elan-transparent** command displays the following information:

Output field	Description
I-SID ID	Indicates the I-SID IDs.
I-SID TYPE	Indicated the I-SID type. • T-UNI: Transparent Port UNI service. • ELAN: any to any service (switched service). • CVLAN: CVLAN based service.
VLANID	Indicates the VLAN IDs.
PORT INTERFACES	Indicates the port interface.
MLT INTERFACES	Indicates the MLT interface.
ISID NAME	Indicates the I-SID names.

Example

View I-SID elan-transparent information.

```
Switch:1>show i-sid elan-transparent
================================================================================
                                Isid Info
================================================================================
ISID       ISID                 PORT           MLT           ISID
ID         TYPE       VLANID    INTERFACES     INTERFACES    NAME
--------------------------------------------------------------------------------
2          ELAN_TR    N/A          -            -             ExtremeServer2
25         ELAN_TR    N/A          1/2-1/8,2/1  25            ExtremeServer4

All 1 out of 1 Total Num of elan-tp i-sids displayed
```

show i-sid mac-address-entry

Display all C-MACs learnt on T-UNI ports for a given I-SID.

Syntax

- **show i-sid mac-address-entry [<1-16777215>] [home] [mac <0x00:0x00:0x00:0x00:0x00:0x00>] [non-local] [port <{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}>] [remote]**

Command Parameters

<1-16777215>

Specifies a service instance identifier (I-SID).

home

Filters the command output to show only MAC addresses learned in the home area.

mac <0x00:0x00:0x00:0x00:0x00:0x00:0x00>

Specifies a MAC address.

non-local

Filters the command output to show only MAC addresses learned from other nodes; not local nodes.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

remote

Filters the command output to show only MAC addresses learned in the remote area.

Default

None

Command Mode

User EXEC

Command Output

The **show i-sid mac-address-entry** command displays the following information:

Output field	Description
I-SID	Specifies the service interface identifier (I-SID).
STATUS	Specifies the learning status of the associated MAC.
MAC-ADDRESS	Specifies the MAC address of the port assigned to the specific I-SID or MAC learned on the specific I-SID.
INTERFACE	Specifies the port or MLT on which the MAC is learned for the specific I-SID.
TYPE	Specifies if the MAC address is learned locally or on an network-to-network interface (NNI) port from a remote destination.
DEST-MAC	Specifies the virtual BMAC address or system ID, in MAC format, of the destination node.

Output field	Description
BVLAN	Specifies the B-VLAN on which the destination node is discovered for the I-SID.
DEST-SYSNAME	Specifies the destination system name.
AREA-ROLE	Indicates the area role of the system.
AREA-NAME	Indicates the area name of the system.

show i-sid name

Shows the global I-SID name to I-SID mapping.

Syntax

- **show i-sid name [name WORD<1-64>]**

Command Parameters

name WORD<1-64>

Specifies the global I-SID name to I-SID mapping.

By default, the service is named ISID-x, where x correlates to the I-SID number of the service.

Default

None

Command Mode

User EXEC

Command Output

The **show i-sid name** command displays the following information:

Output field	Description
I-SID	Indicates the I-SID IDs.
ISID NAME	Indicates the I-SID names.
TYPE	Shows the I-SIDs that are in use as services and the I-SIDs that the administrator names. An I-SID can have one base type or a combination of base types. You can use the combination of base types so that multiple services can use the same I-SID at the same time. Following are some of the combinations of the base types: • config—Shows the SUNI (elan) or TUNI (elan-transparent) in use. • discoverLocal—Shows the information that is discovered locally. For example, fabric attach and endpoint tracking information that is received from the local box. • discoverRemote—Shows the information that is discovered remotely. For example, SMLT peer communicates on fabric attached or EPT discovery. • mgmt—Shows the fabric attach management details. • l2vsn—Shows the layer 2 VSN details, such as VLAN I-SID for port based or private VLAN for etree. • l3vsn—Shows the layer 3 VSN details, such as IPVPN and IPv6 IPVPN. • adminName—Shows the user names service details. • eapDiscoverLocal—Shows the information that is discovered by EAP. • eapDiscoverRemote—Shows the information that is discovered by an EAP IST peer. • autoSense—Shows the onboarding I-SID, discovered by Zero Touch Fabric Configuration. • radius—Specifies a RADIUS created I-SID.

Example

View I-SID names.

```
Switch:1>show i-sid name
================================================================================
                            I-SID Name
================================================================================
I-SID           I-SID NAME                      TYPE
--------------------------------------------------------------------------------
1               ExtremeServer1                  adminName
2               ExtremeServer2                  adminName
3               ExtremeServer3                  config adminName
4               ISID-4                          config
23              ISID-23                         config
25              ExtremeServer4                  config adminName

Total number of I-SID Name entries: 6.
```

show ip address

Displays all configured IP addresses.

Syntax

- **show ip address [primary] [secondary] [vlan {vlan-id[-vlan-id] [,...]}<1-4059>] [vrf WORD<1-16>] [vrfids WORD<0-512>]**

Command Parameters

primary

Displays only primary IP addresses.

secondary

Displays only Secondary IP Interfaces.

vlan {vlan-id[-vlan-id][,...]}<1-4059>

Displays only IP addresses configured on VLANs.

vrf WORD <1-16>

Displays only IP addresses configured for the specified VRF name.

vrfids <0-512>

Displays only IP addresses configured for the specified VRF ID.

Command Mode

User Exec

Command Output

The **show ip address** command displays the following information:

Output field	Description
INTERFACE	Displays the interface.
VRF Name	Displays the VRF name.
IP ADDRESS	Displays the configured IP address.
NET MASK	Displays the configured subnet mask.
VLAN ID	Displays the VLAN ID, if applicable.
ADDR TYPE	Displays the address type, either primary or secondary.

Examples

The following example displays all configured IP addresses.

```
Switch:1>show ip address
================================================================================
```

```
                          IP Address - GlobalRouter
================================================================================================
INTERFACE    VRF             IP              NET             VLAN      ADDR
             Name            ADDRESS         MASK            ID        TYPE
------------------------------------------------------------------------------------------------
Port1/5      GlobalRouter    192.0.2.14       255.255.255.0   3036      primary
Clip2        GlobalRouter    192.0.2.15       255.255.0.0     --        primary
Vlan2        GlobalRouter    192.0.2.16       255.255.255.0   2         primary
Vlan5        GlobalRouter    192.0.2.17       255.255.255.0   5         primary
Vlan222      GlobalRouter    192.0.2.1        255.255.255.0   222       primary
Vlan222      GlobalRouter    192.0.2.2        255.255.255.0   222       secondary
Vlan223      GlobalRouter    192.0.2.3        255.255.255.0   223       primary
Vlan223      GlobalRouter    192.0.2.4        255.255.255.0   223       secondary
```

The following example displays output from a switch that uses Segmented VRF on VRF1. The address information is separated by segment, with the trusted segment first.

```
Switch:1>show ip address vrf vrf1
================================================================================================
                            IP Address - VRF vrf1
================================================================================================
INTERFACE    VRF             IP              NET             VLAN      ADDR
             Name            ADDRESS         MASK            ID        TYPE
------------------------------------------------------------------------------------------------
Vlan192      vrf1            192.0.2.1       255.255.255.0   192       primary

------------------------------------------------------------------------------------------------
Vlan198      vrf1-unr        198.51.100.1    255.255.255.0   198       primary

------------------------------------------------------------------------------------------------
Vlan203      vrf1-unt        203.0.113.1     255.255.255.0   203        primary


All 3 out of 3 Total Num of IP interfaces displayed
```

show ip anycast-gateway i-sid

Displays routing information for Anycast IP Gateway interfaces on BEBs.

Syntax

- **show ip anycast-gateway i-sid [<1-15999999>] [adv-sys-id <xxxx.xxxx.xxxx>] [all-routers] [home] [remote]**

Command Parameters

1-15999999

Filters the output by I-SID.

adv-sys-id <xxxx.xxxx.xxxx>

Filters the output for a specific advertising router by IS-IS system ID.

all-routers

Displays the information for all advertising routers.

home

Filters the output for the home area.

remote

Filters the output for the remote area.

Default

None

Command Mode

User EXEC

Command Output

The **show ip anycast-gateway i-sid** command displays the following information:

Output field	Description
L2VSN	Displays the Layer 2 VSN I-SID.
L3VSN	Displays the Layer 3 VSN I-SID.
GW IPv4	Displays the IPv4 gateway address.
GW MAC	Displays the gateway MAC.
PATH-COST	Displays the SPB path cost to the next hop.
ADD-METRIC	Displays the SPB cost advertised by the Multi-area SPB designated boundary node.
NEXT-HOP-BMAC	Displays the BMAC of the next hop.
AREA	Displays the area to which the entry belongs.
ADV-SYS-ID	Displays the IS-IS system ID of the advertising node.
ACTIVE	Displays if the advertising node is the installed Anycast IP Gateway router. This column displays in the output if you use the optional *all-routers* parameter.
ADV-RTR	Displays the host name of the advertising node.

Example

The following example displays routing information without optional command parameters.

```
Switch:1>show ip anycast-gateway i-sid
================================================================================================================
                                    Anycast I-SID
================================================================================================================
                                          PATH  ADD
L2VSN  L3VSN  GW IPv4      GW MAC           COST  METRIC  NEXT-HOP-BMAC      AREA   ADV-SYS-ID     ADV-RTR
----------------------------------------------------------------------------------------------------------------
10     0      192.0.2.254  00:00:5e:00:01:27 50    0       00:01:00:01:44:16  HOME   0001.0001.4416 R2
11     0      198.0.2.254  00:00:5e:00:01:27 50    0       00:01:00:01:44:15  HOME   0001.0001.4415 R1
----------------------------------------------------------------------------------------------------------------
2 out of 2 total number of entries displayed
```

The following example displays information for all advertising routers.

```
Switch:1>show ip anycast-gateway i-sid all-routers
================================================================================================================
                                        Anycast I-SID
================================================================================================================
                                        PATH  ADD
L2VSN L3VSN GW IPv4     GW MAC          COST  METRIC NEXT-HOP-BMAC     AREA ADV-SYS-ID     ACTIVE ADV-RTR
----------------------------------------------------------------------------------------------------------------
10    0     192.0.2.254 00:00:5e:00:01:27 50    0      00:01:00:01:44:15 HOME 0001.0001.4415 false  R1
10    0     192.0.2.254 00:00:5e:00:01:27 50    0      00:01:00:01:44:16 HOME 0001.0001.4416 true   R2
11    0     198.0.2.254 00:00:5e:00:01:27 50    0      00:01:00:01:44:15 HOME 0001.0001.4415 true   R1
11    0     198.0.2.254 00:00:5e:00:01:27 50    0      00:01:00:01:44:16 HOME 0001.0001.4416 false  R2
----------------------------------------------------------------------------------------------------------------
4 out of 4 total number of entries displayed
```

show ip anycast-gateway interfaces

Displays an entry for each local routing interface.

Syntax

- **show ip anycast-gateway interfaces [i-sid <1-15999999>] [vlan <1-4059>] [vrf WORD<1-16>] [vrfids WORD<0-512>]**

Command Parameters

i-sid <1-15999999>

Filters the output by I-SID.

vlan *<1-4059>*

Filters the output by VLAN.

vrf WORD<1-16>

Filters the output by VRF name.

vrfids WORD<0-512>

Filters the output by VRF ID.

Default

None

Command Mode

User EXEC

Command Output

The **show ip anycast-gateway interfaces** command displays the following information:

Output field	Description
L2VSN	Displays the Layer 2 VSN I-SID associated with the interface.
VLAN GW IPv4	Displays the IPv4 gateway address.
GW MAC	Displays the gateway MAC.
VRID	Displays the virtual router ID.
ADMIN STATUS	Displays if Anycast IP Gateway is enabled on the interface.
OPER STATE	Displays the operational state of the interface.
ONE-IP	Displays if the interface is a One IP interface, meaning the VLAN IP and gateway IP are the same.
VRF ID	Displays the VRF ID, if one is associated with the interface.
VRF Name	Displays the VRF name, if one is associated with the interface.

Example

The following example displays Anycast IP Gateway interfaces.

```
Switch:1>show ip anycast-gateway interfaces
================================================================================
                         Anycast interfaces - GlobalRouter
================================================================================
                                                ADMIN    OPER           VRF     VRF
L2VSN  VLAN GW IPv4      GW MAC             VRID  STATUS   STATE  ONE-IP  ID      Name
--------------------------------------------------------------------------------
10     10   192.0.2.254  00:00:5e:00:01:27  39  enable     up     false   0    GlobalRouter
11     11   198.0.2.254  00:00:5e:00:01:27  39  enable     up     true    0    GlobalRouter
2 out of 2 total number of interfaces displayed

--------------------------------------------------------------------------------
```

show ip arp

Show ARP information to view the configuration information in the ARP table.

Syntax

- **show ip arp**
- **show ip arp {A.B.C.D}**
- **show ip arp -s {A.B.C.D} {A.B.C.D}**
- **show ip arp vlan <1-4059>**
- **show ip arp vrf WORD<1-16>**
- **show ip arp vrfids WORD<0-512>**

Command Parameters

{A.B.C.D}

Specifies the network IP address for the table.

-s {A.B.C.D} {A.B.C.D}

Specifies the network IP address for the table.

vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

vrf WORD<1-16>

Specifies the name of the VRF. The total number of ARPs listed in the summary line of the show ip arp display represents the total number of ARPs on the chassis including all VRFs (which includes the Mgmt Router VRF).

vrfids WORD<0-512>

Specifies the VRF ID. The total number of ARPs listed in the summary line of the show ip arp display represents the total number of ARPs on the chassis, including all VRFs (which includes the Mgmt Router VRF).

Default

None

Command Mode

User EXEC

Command Output

The **show ip arp** command displays the following information:

Output field	Description
IP_ADDRESS	Indicates the IP address where ARP is configured.
MAC_ADDRESS	Indicates the MAC address where ARP is configured.
VLAN	Indicates the VLAN address where ARP is configured.
PORT	Indicates the port where ARP is configured.

Output field	Description
TYPE	Indicates the type of learning (dynamic or local) where ARP is configured.
TTL<10 Sec>	Indicates the time to live as tenths of a second where ARP is configured.
TUNNEL	Displays the remote host name in the TUNNEL column for the SPBM ARP entry.
MULTICAST-MAC-FLOODING	The **show ip arp** command output includes the column heading, MULTICAST-MAC-FLOODING, that is not supported on the switch. You cannot enable this feature.
AGING (Minutes)	Displays when the ARP aging timer expires.
ARP-THRESHOLD	Displays the maximum number of outstanding ARP requests that a device can generate.
L3 ACCESS	Displays the Layer 3 access level for the entry. If the source is a Segmented VRF, this column displays the segment name.

Example

The following example displays the output for the **show ip arp** command without optional parameters.

```
Switch:1#show ip arp
================================================================================================
                                  IP Arp - GlobalRouter
================================================================================================
IP_ADDRESS    MAC_ADDRESS       VLAN  PORT     TYPE    TTL(10 Sec) TUNNEL  L3 ACCESS
------------------------------------------------------------------------------------------------
192.0.2.1     00:09:0f:09:00:08  20    1/3     DYNAMIC 2159                GlobalRouter
192.0.2.12    b4:a9:5a:ff:f8:40  20    1/3     DYNAMIC 458                 GlobalRouter
192.0.2.25    e4:5d:52:3c:65:00  20    -       LOCAL   2160                GlobalRouter
192.0.2.154   d4:ea:0e:c2:08:00  20    1/3     DYNAMIC 2131                GlobalRouter
192.0.2.157   00:1c:17:b1:ec:80  20    1/3     DYNAMIC 2131                GlobalRouter
192.0.2.161   fc:a8:41:fb:40:00  20    1/3     DYNAMIC 2131                GlobalRouter
192.0.2.253   e0:db:55:d4:e5:7c  20    1/3     DYNAMIC 2041                GlobalRouter
192.0.2.255   ff:ff:ff:ff:ff:ff  20    -       LOCAL   2160                GlobalRouter

================================================================================================
                           IP Arp Extn - GlobalRouter
================================================================================================
MULTICAST-MAC-FLOODING    AGING(Minutes)       ARP-THRESHOLD
------------------------------------------------------------------------------------------------
disable                   360                  500

c: customer vid   u: untagged-traffic


8 out of 8 ARP entries displayed


ARPs on TX-NNI: Current = 0, re-ARP count = 0
```

show ip arp gigabitethernet

Display ARP entries for a particular brouter port.

Syntax

- **show ip arp gigabitethernet {slot/port[/sub-port]}**
- **show ip arp gigabitEthernet**
- **show ip arp gigabitethernet {slot/port[/sub-port]} vrf WORD<1-16>**
- **show ip arp gigabitethernet {slot/port[/sub-port]} vrfids WORD<0-512>**

Command Parameters

{slot/port[sub-port]}

Identifies a single slot and port. If your platform supports channelization and the port is channelized, you must also specify the subport in the format slot/port/sub-port.

vrf WORD<1-16>

Specifies a VRF instance by name.

vrfids WORD<0-512>

Specifies a range of VRFs by ID number.

Default

None

Command Mode

User EXEC

show ip arp interface

Show ARP port information to display data about the specified port, all ports, or the VLAN.

Syntax

- **show ip arp interface gigabitethernet [{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]**
- **show ip arp interface vlan <1-4059>**

Command Parameters

gigabitethernet *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

User EXEC

show ip arp spbm-tunnel-as-mac

Display SPBM ARP entry tunnel as BMAC.

Syntax

- **show ip arp spbm-tunnel-as-mac**

Default

None

Command Mode

User EXEC

show ip arp-inspection

Displays DAI information.

Syntax

- **show ip arp-inspection**
- **show ip arp-inspection vlan <1-4059>**
- **show ip arp-inspection vrf WORD<1-16>**
- **show ip arp-inspection vrfids WORD<0-512>**

Command Parameters

vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

vrf WORD<1-16>

Specifies the name of the VRF. The total number of ARPs listed in the summary line of the show ip arp display represents the total number of ARPs on the chassis including all VRFs (which includes the Mgmt Router VRF).

vrfids WORD<0-512>

Specifies the VRF ID. The total number of ARPs listed in the summary line of the show ip arp display represents the total number of ARPs on the chassis, including all VRFs (which includes the Mgmt Router VRF).

Default

None

Command Mode

User EXEC

show ip arp-inspection interface

Displays DAI interface configuration.

Syntax

- **show ip arp-inspection interface**
- **show ip arp-inspection interface vlan**
- **show ip arp-inspection interface vlan <1-4059>**
- **show ip arp-inspection interface vrf WORD<1-16>**
- **show ip arp-inspection interface vrfids WORD<0-512>**

Command Parameters

vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

vrf WORD<1-16>

Displays DAI configuration for a particular VRF.

vrfids WORD<0-512>

Displays DAI configuration for a particular VRF ID.

Default

None

Command Mode

User EXEC

show ip arp-inspection interface gigabitEthernet

Displays DAI configuration on the port.

Syntax

- **show ip arp-inspection interface gigabitEthernet [<1-4059>] [vrf WORD<1-16>] [vrfids WORD<0-512>] [{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Displays DAI configuration for a particular port.

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

<1-4059>

Displays the DAI VLAN configuration.

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

vrf WORD<1-16>

Displays DAI configuration for a particular VRF.

vrfids WORD<0-512>

Displays DAI configuration for a particular VRF ID.

Default

None

Command Mode

User EXEC

show ip as-list

Show the AS path lists on the Global Router.

Syntax

- **show ip as-list [<1-1024>] [vrf WORD<1-16>] [vrfids WORD<0-512>]**

Command Parameters

<1-1024>

Specifies the list ID.

vrf WORD<1-16>

Specifies the name of the VRF.

vrfids WORD<0-512>

Specifies the VRF ID in the range of 0 to 512.

Default

None

Command Mode

User EXEC

show ip bfd

Display global Bidirectional Forwarding Detection (BFD) configuration information for IPv4 interfaces.

Syntax

- **show ip bfd**
- **show ip bfd vrf**
- **show ip bfd vrfids**

Command Parameters

vrf

Specifies a VRF instance by VRF name.

vrfids

Specifies a VRF or range of VRFs by ID.

Command Mode

User EXEC

Command Output

The **show ip bfd** command displays the following information:

Output field	Description
BFD Version	Specifies the current BFD version.
Admin Status	Specifies whether BFD is enabled globally.
Trap Enable	Specifies whether traps are enabled.
Total session number	Specifies the total number of BFD sessions.
UP	Specifies whether a BFD session is in UP state.
DOWN	Specifies whether a BFD session is in DOWN state.
AdminDown	Specifies whether a BFD session is in AdminDown state.
Init	Specifies whether a BFD session is in Init state.

Example

The following example displays global configuration information for BFD on an IPv4 interface.

```
Switch:1>show ip bfd
================================================================================
                          BFD information - GlobalRouter
================================================================================
                       BFD Version :  1
                      Admin Status :  TRUE
                       Trap Enable :  FALSE
--------------------------------------------------------------------------------
   Total session number :  1

    UP: 1, DOWN: 0, AdminDown: 0, Init: 0
--------------------------------------------------------------------------------
```

show ip bfd interfaces

Display Bidirectional Forwarding Detection (BFD) configuration for a port, VLAN, or loopback on an IPv4 interface.

Syntax

- **show ip bfd interfaces gigabitethernet {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **show ip bfd interfaces gigabitethernet vrf WORD<1-16>**
- **show ip bfd interfaces gigabitethernet vrfids WORD<0-512>**
- **show ip bfd interface loopback <1-256>**
- **show ip bfd interfaces vlan <1-4059>**
- **show ip bfd interfaces vlan vrf WORD<1-16>**
- **show ip bfd interfaces vlan vrfids WORD<0-512>**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

vrf WORD<1-16>

Specifies a VRF instance by VRF name.

vrfids WORD<0-512>

Specifies a VRF or range of VRFs by ID.

<1-256>

Specifies the loopback interface ID value.

Command Mode

User EXEC

Command Output

The **show ip bfd interfaces** command displays the following information:

Output field	Description
VLAN	Specifies the VLAN ID. This field displays only in output for VLAN interfaces.
PORT	Specifies the port number. This field displays only in output for GigabitEthernet interfaces.
INTF ID	Specifies the loopback interface ID. This field displays only in output for Loopback interfaces.
STATUS	Specifies whether BFD is enabled on the interface.
MIN_RX	Specifies the receive interval in milliseconds.
INTERVAL	Specifies the transmit interval in milliseconds.
MULTIPLIER	Specifies the multiplier used to calculate the amount of time BFD waits before declaring a receive timeout.
VRF-ID	Specifies a VRF ID.

Examples

The following example displays VLAN interface configuration information for BFD.

```
Switch:1>show ip bfd interfaces vlan 11
================================================================================================
                                    Vlan Bfd
================================================================================================
VLAN       STATUS     MIN_RX     INTERVAL   MULTIPLIER      VRF-ID
------------------------------------------------------------------------------------------------
```

```
11          enable      200         200         3               0
```

The following example displays Loopback interface configuration information for BFD:

```
Switch:1>show ip bfd interfaces loopback
================================================================================
                          Circuitless IP Interface Bfd
================================================================================
INTF ID     STATUS      MIN_RX      INTERVAL    MULTIPLIER      VRF-ID
--------------------------------------------------------------------------------
1           enable      200         200         3               0
2           enable      200         200         3               2
```

show ip bfd neighbors

Display Bidirectional Forwarding Detection (BFD) session information for IPv4 neighbors.

Syntax

- **show ip bfd neighbors**
- **show ip bfd neighbors next-hop**
- **show ip bfd neighbors vrf**
- **show ip bfd neighbors vrfids**

Command Parameters

next-hop

Specifies the next-hop IP address in the format a.b.c.d.

vrf

Specifies a VRF instance by VRF name.

vrfids

Specifies a VRF or range of VRFs by ID.

Command Mode

User EXEC

Command Output

The **show ip bfd neighbors** command displays the following information:

Output Field	Description
MY_DISC	Specifies the local discriminator for the BFD session.
YOUR_DISC	Specifies the remote discriminator for the BFD session.

Output Field	Description
NEXT_HOP	Specifies the next-hop IP address.
STATE	Specifies the BFD session state. Possible values are Down, Up, Init, and AdminDown.
MULTI	Specifies the multiplier used to calculate the amount of time BFD waits before declaring a receive timeout.
MIN_TX	Specifies, in microseconds, the minimum interval that the local system prefers to use when transmitting BFD control packets.
MIN_RX	Specifies, in microseconds, the minimum interval between received BFD control packets.
ACT_TX	Specifies, in microseconds, the actual transmission interval.
DETECT_TIME	Specifies the period of time without receiving BFD packets, after which the session is determined to have failed.
REMOTE_STATE	Specifies the BFD session state of the remote system.
APP	Specifies the application configured on the BFD session.
RUN	Specifies the application running on the BFD session.

Example

The following example displays BFD session information for an IPv4 neighbor.

```
Switch:1>show ip bfd neighbors
================================================================================================================================
                                        BFD Session - GlobalRouter
================================================================================================================================

MY_DISC    YOUR_DISC  NEXT_HOP        STATE      MULTI MIN_TX MIN_RX ACT_TX DETECT_TIME REMOTE_STATE APP    RUN

1          0          192.0.2.11      Down       3     200    200    1000   600         Down         O
--------------------------------------------------------------------------------------------------------------------------------
  1 out of 1 BFD session displayed
--------------------------------------------------------------------------------------------------------------------------------
APP and RUN Legend:
        B=BGP, O=OSPF, S=Static Route
--------------------------------------------------------------------------------------------------------------------------------
```

show ip bfd stats

Display Bidirectional Forwarding Detection (BFD) statistics for IPv4 interfaces.

Syntax

- **show ip bfd stats**
- **show ip bfd stats vrf WORD<1-16>**
- **show ip bfd stats vrfids WORD<0-512>**

Command Parameters

vrf

Specifies a VRF instance by VRF name.

vrfids

Specifies a VRF or range of VRFs by ID.

Command Mode

User EXEC

Command Output

The **show ip bfd stats** command displays the following information:

Output field	Description
MY_DISC	Specifies the local discriminator for the BFD session.
YOUR_DISC	Specifies the remote discriminator for the BFD session.
NEXT_HOP	Specifies the next-hop IPv4 address.
PACKT_IN	Specifies the total number of BFD messages received for this BFD session.
PACKET_OUT	Specifies the total number of BFD messages sent for this BFD session.
LAST_UP	The value of sysUpTime on the most recent occasion at which the session came up. If no such up event exists this object contains a zero value.
LAST_DOWN	The value of sysUpTime on the most recent occasion at which the last time communication was lost with the neighbor. If no such down event exist this object contains a zero value

Example

The following example displays BFD statistics for IPv4 interfaces.

```
Switch:1>show ip bfd stats
=============================================================================================================
                              BFD staticstics - GlobalRouter
=============================================================================================================

MY_DISC    YOUR_DISC  NEXT_HOP     PACKT_IN     PACKET_OUT   LAST_UP                    LAST_DOWN
-------------------------------------------------------------------------------------------------------------

1          0          192.0.2.10   4661750      4620630      Mon Sep  6 15:31:15 2021   Mon Sep  6
15:28:08 2021
-------------------------------------------------------------------------------------------------------------
```

show ip bgp aggregates

Display information about current aggregate addresses.

Syntax

- **show ip bgp aggregates [<prefix/len>] [vrf WORD<1-16>] [vrfids WORD<0-255>]**

Command Parameters

<prefix/len>

Specifies the IP address and the mask length (the length can be 0 to 32).

vrf WORD<1-16>

Specifies a VRF instance by name.

vrfids WORD <0-512>

Specifies a range of VRFs by ID number.

Default

None

Command Mode

User EXEC

show ip bgp cidr-only

Display information about classless interdomain routing (CIDR) routes.

Syntax

- **show ip bgp cidr-only [<prefix/len>] [vrf WORD<1-16>] [vrfids WORD<0-512>]**

Command Parameters

<prefix/len>

Specifies an exact match of the prefix. This is an IP address and an integer value between 0 and 32 in the format a.b.c.d/xx.

vrf WORD<1-16>

Specifies a VRF instance by name.

vrfids WORD<0-512>

Specifies a range of VRFs by ID number.

Default

None

Command Mode

User EXEC

Command Output

The **show ip bgp cidr-only** command displays the following information:

Output field	Description
NETWORK/MASK	Specifies the network IP address and exact mask length (must be an integer value from 0–32).
PEER REM ADDR	Specifies the IP address of the remote peer.
NEXTHOP ADDRESS	Specifies the IP address of the next hop.
ORG	Specifies the source of a route: • IGP — the route is interior to the originating AS that inserts this route into the BGP table (0 = IGP). • EGP — the route is learned through an Exterior Gateway Protocol (EGP) before it is inserted into the BGP table (1 = BGP). • Incomplete — the origin of the route is unknown or learned by some other means. For example, the router learns these routes through RIP, OSPF, or static routes (2 = Incomplete).
LOC PREF	Specifies the local preference.

show ip bgp confederation

View BGP confederation information on the switch.

Syntax

- **show ip bgp confederation**

Default

None

Command Mode

User EXEC

show ip bgp conf

Display information about the current BGP configuration.

Syntax

- **show ip bgp conf [vrf WORD<1-16>] [vrfids WORD<0-512>]**

Command Parameters

vrf WORD<1-16>

Specifies a VRF instance by name.

vrfids WORD<0-512>

Specifies a range of VRFs by ID number.

Default

None

Command Mode

User EXEC

show ip bgp dampened-paths

Display information about flap-dampened routes to determine unreliable routes.

Syntax

- **show ip bgp dampened-paths <A.B.C.D> [<prefix/len>] [longer-prefixes] [vrf WORD<1-16>] [vrfids WORD<0-512>]**

Command Parameters

{A.B.C.D}

Specifies the source IP address in the format a.b.c.d.

<prefix/len>

Shows paths with this prefix. The prefix is the IP address and exact mask length (must be an integer value between 0 and 32).

longer-prefixes

Shows long prefixes. The longer-prefixes indicate the mask length from any specified prefix to 32 (for example, show from prefix a.b.c.d/len to a.b.c./32).

vrf WORD<1-16>

Specifies a VRF instance by name.

vrfids WORD<0-512>

Specifies a range of VRFs by ID number.

Default

None

Command Mode

User EXEC

Command Output

The **`show ip bgp dampened-paths`** command displays the following information:

Output field	Description
NETWORK/MASK	Specifies the network IP address and exact mask length (must be an integer value from 0–32).
PEER REM ADDR	Specifies the IP address of the remote peer.
NEXTHOP ADDRESS	Specifies the IP address of the next hop.
ORG	Specifies the source of a route: • IGP — the route is interior to the originating AS that inserts this route into the BGP table (0 = IGP). • EGP — the route is learned through an Exterior Gateway Protocol (EGP) before it is inserted into the BGP table (1 = BGP). • Incomplete — the origin of the route is unknown or learned by some other means. For example, the router learns these routes through RIP, OSPF, or static routes (2 = Incomplete).
LOC PREF	Specifies the local preference.

show ip bgp flap-damp-config

Display global information about flap-dampening.

Syntax

- **`show ip bgp flap-damp-config [<prefix/len>] [vrf WORD<1-16>] [vrfids WORD<0-512>]`**

Command Parameters

[<prefix/len>]

Specifies the exact match the prefix {a,b,c,d/len}.

vrf WORD <1-16>

Displays BGP configuration for a particular VRF.

vrfids WORD<0-512>

Specifies the VRF ID in the range of 0 to 512.

Default

None

Command Mode

User EXEC

Command Output

The **show ip bgp flap-damp-config** command displays the following information:

Output field	Description
Status	Indicates the global state of the route flap dampening feature. Valid values are enable or disable.
PolicyName	This field does not apply to the switch.
CutoffThreshold	Indicates the penalty level that causes route suppression.
ReuseThreshold	Specifies the system-configured time for route reuse.
Decay	Indicates the decay rate based on the decay algorithm.
MaxHoldDown	Indicates the maximum length of time, in seconds, to suppress the route.

show ip bgp imported-routes

Display information about BGP imported routes.

Syntax

- **show ip bgp imported-routes [<prefix/len>][longer-prefixes] [vrf WORD<1-16>] [vrfids WORD<0-512>]**

Command Parameters

<prefix/len>

Shows paths with this prefix. The prefix is the IP address and exact mask length (must be an integer value between 0 and 32).

longerprefixes

Shows long prefixes. The longer-prefixes indicate the mask length from any specified prefix to 32 (for example, show from prefix a.b.c.d/len to a.b.c./32).

vrf WORD<1-16>

Specifies a VRF instance by name.

vrfids WORD<0-512>

Specifies a range of VRFs by ID number.

Default

None

Command Mode

User EXEC

Command Output

The **show ip bgp imported-routes** command displays the following information:

Output field	Description
ROUTE	Specifies the IP address of the route.
METRIC	Specifies the route metric.
COMMUNITY	Specifies the BGP community.
LOCALPREF	Specifies the local preference.
NEXTHOP	Specifies the IP address of the next hop.
ORIGIN	Specifies the source of a route: • IGP — the route is interior to the originating AS that inserts this route into the BGP table (0 = IGP). • EGP — the route is learned through an Exterior Gateway Protocol (EGP) before it is inserted into the BGP table (1 = BGP). • Incomplete — the origin of the route is unknown or learned by some other means. For example, the router learns these routes through RIP, OSPF, or static routes (2 = Incomplete).

show ip bgp neighbors

Display information about BGP peer advertised routes, peer routes, and IP VPN BGP peers.

Syntax

- **show ip bgp neighbors [{A.B.C.D}] [advertised-routes][<prefix/len>] [vrf WORD<1-16>] [vrfids WORD<0-512>]**
- **show ip bgp neighbors [{A.B.C.D}][vrf WORD<1-16>][vrfids WORD<0-512>]**

- **show ip bgp neighbors {A.B.C.D} routes [<prefix/len>][community <disable|enable>] [longerprefixes] [vrf WORD<1-16>] [vrfids WORD<0-512>]**
- **show ip bgp neighbors {A.B.C.D} stats [vrf WORD<1-16>][vrfids WORD<0-512>]**
- **show ip bgp neighbors {A.B.C.D} vpnv4 [<prefix/len>][community <disable|enable>] [extcommunity][longer-prefixes] [vrf WORD<1-16>] [vrfids WORD<0-512>]**

Command Parameters

{A.B.C.D}

Specifies the IP address.

<prefix/len>

Shows paths with this prefix. The prefix is the IP address and exact mask length (must be an integer value between 0 and 32).

advertised-routes

Displays information about BGP peer advertised routes.

community

Enables the display of community attributes.

ext-community

Enables the display of extended community attributes.

longer-prefixes

Shows long prefixes. The longer-prefixes indicate the mask length from any specified prefix to 32 (for example, show from prefix a.b.c.d/len to a.b.c.d/32).

routes

Displays information about BGP peer routes.

stats

Displays statistics information for BGP peers.

vpnv4

Displays information about IP VPN BGP peers.

vrf WORD<1-16>

Specifies a VRF instance by name.

vrfids WORD<0-512>

Specifies a range of VRFs by ID number.

Default

None

Command Mode

User EXEC

show ip bgp networks

Display information about BGP network configurations.

Syntax

- **show ip bgp networks [<prefix/len>] [vrf WORD<1-16>] [vrfids WORD<0-512>]**

Command Parameters

<prefix/len>

Shows networks with this prefix. The prefix is the IP address and exact mask length (must be an integer value between 0 and 32).

vrf WORD<1-16>

Specifies a VRF instance by name.

vrfids WORD<0-512>

Specifies a range of VRFs by ID number.

Default

None

Command Mode

User EXEC

show ip bgp peer-group

Display information about BGP peer groups.

Syntax

- **show ip bgp peer-group [WORD<0-1536>] [vrf WORD<1-16>] [vrfids WORD<0-512>]**

Command Parameters

vrf WORD<1-16>

Specifies a VRF instance by name.

vrfids WORD<0-512>

Specifies a range of VRFs by ID number.

WORD<0-1536>

Specifies the name of the peer group.

Default

None

Command Mode

User EXEC

show ip bgp redistributed-routes

View BGP redistribution information on the switch.

Syntax

- **show ip bgp redistributed-routes <prefix/len> vrf WORD<1-16> vrfids WORD<0-512>**

Command Parameters

<prefix/len>

Shows paths with this prefix. The prefix is the IP address and exact mask length (must be an integer value between 0 and 32).

vrf WORD<1-16>

Specifies a VRF instance by name.

vrfids WORD<0-512>

Specifies a range of VRFs by ID number.

Default

None

Command Mode

User EXEC

Command Output

The **show ip bgp redistributed-routes** command displays the following information:

Output field	Description
SRC-VRF	Displays the redistribution source VRF instance.
SRC	Displays the redistribution source: RIP, Local, Static, or OSPF.
MET	Displays the metric value.
MET-TYPE	Displays the redistribution metric type.
ENABLE	Displays whether the redistribution policy is enabled (T) true or disabled (F) false.
RPOLICY	Displays the route policy currently assigned to the redistribution.
AUTO-FILTER	Displays if route filtering of tagged routes is enabled.

show ip bgp route

Display information about BGP routes.

Syntax

- **show ip bgp route [<prefix/len>] [longer-prefixes][community <enable|disable>] [ip <A.B.C.D>][vrf WORD<1-16>] [vrfids WORD<0-512>]**

Command Parameters

<prefix/len>

Shows paths with this prefix. The prefix is the IP address and exact mask length (must be an integer value between 0 and 32).

community <enable|disable>

Enables or disables the display of community attributes.

ip <A.B.C.D>

Specifies an IP address.

longer-prefixes

Shows long prefixes. The longer-prefixes indicate the mask length from any specified prefix to 32 (for example, show from prefix a.b.c.d/len to a.b.c./32).

vrf WORD<1-16>

Specifies a VRF instance by name.

vrfids WORD<0-512>

Specifies a range of VRFs by ID number.

Default

None

Command Mode

User EXEC

Command Output

The **show ip bgp route** command displays the following information:

Output field	Description
NETWORK/MASK	Specifies the path prefix address.
PEER REM ADDR	Specifies the remote peer address.
NEXTHOP ADDRESS	Specifies the BGP next hop address.
ORG	Specifies the source of a route: • IGP — the route is interior to the originating AS that inserts this route into the BGP table (0 = IGP). • EGP — the route is learned through an Exterior Gateway Protocol (EGP) before it is inserted into the BGP table (1 = BGP). • Incomplete — the origin of the route is unknown or learned by some other means. For example, the router learns these routes through RIP, OSPF, or static routes (2 = Incomplete).
LOCAL PREF	Specifies the local preference.

show ip bgp stats

View Border Gateway Protocol (BGP) statistics.

Syntax

- **show ip bgp stats**
- **show ip bgp stats vrf WORD<1-16>**
- **show ip bgp stats vrf WORD<1-16> vrfids WORD<0-512>**
- **show ip bgp stats vrfids WORD<0-512>**

Command Parameters

vrf WORD<1-16>

Specifies a VRF instance by name.

vrfids WORD<0-512>

Specifies a range of VRFs by ID number.

Default

None

Command Mode

User EXEC

show ip bgp summary

Display summarized information about Border Gateway Protocol (BGP).

Syntax

- **show ip bgp summary [vrf WORD<1-16>] [vrfids WORD<0-512>]**

Command Parameters

vrf WORD <1-16>

Specifies a VRF instance by name.

vrfids WORD <0-512>

Specifies a range of VRFs by ID number.

Default

None

Command Mode

User EXEC

Command Output

The **show ip bgp summary** command displays the following information:

Output field	Description
BGP version	Specifies the version of BGP that runs on the router.
local-as	Specifies the local autonomous system number.
Identifier	Specifies the BGP identifier.
Decision state	Specifies the BGP process state.
NEIGHBOR	Specifies the IP address of the remote peer.
RMTAS	Specifies the AS number of the remote peer.
STATE	Specifies the peer operating state: Idle, Accept, Connect, Open, Open-sent, and Established.

Output field	Description
HLDTM	Specifies the negotiated hold time timer.
KPALV	Specifies the keep alive timer.
HLDCFG	Specifies the configured hold time timer.
KPCFG	Specifies the configured keep alive timer.
WGHT	Specifies the weight value assigned to the peer.
CONRTY	Specifies the retry timer.
ADVINT	Specifies the advertisement interval.
UPTime	Specifies how long (in seconds) this peer has been in the established state, or how long since this peer was last in the established state. It is set to zero when a new peer is configured or when the router is booted. If the peer never reaches the established state, the value remains zero.

show ip community-list

Show the community lists on the Global Router.

Syntax

- **show ip community-list [<1-1024>] [vrf WORD<1-16>] [vrfids WORD<0-512>]**

Command Parameters

<1-1024>

Specifies the list ID.

vrf WORD<1-16>

Specifies the name of the VRF.

vrfids WORD<0-512>

Specifies the VRF ID in the range of 0 to 512.

Default

None

Command Mode

User EXEC

show ip dhcp-relay counters

Display information about the Dynamic Host Configuration Protocol (DHCP) relay counters.

Syntax

- **show ip dhcp-relay counters**
- **show ip dhcp-relay counters [option82]**
- **show ip dhcp-relay counters [option82] [vrf WORD<1-16>]**
- **show ip dhcp-relay counters [option82] [vrf WORD<1-16>] [vrfids <0-512>]**
- **show ip dhcp-relay counters [option82] [vrfids <0-512>]**
- **show ip dhcp-relay counters [vrf WORD<1-16>]**
- **show ip dhcp-relay counters [vrf WORD<1-16>] [vrfids WORD<0-512>]**
- **show ip dhcp-relay counters [vrfids WORD<0-512>]**

Command Parameters

option82

Shows statistics for the relay agent option.

vrf WORD<1-16>

Specifies the name of the VRF.

vrfids <0-512>

Specifies the ID of the VRF.

Default

None

Command Mode

User EXEC

Command Output

The **show ip dhcp-relay counters option82** command displays the following information:

Output field	Description
INTERFACE	Shows the VLAN or port associated with the respective relay interface.
IP ADDR	Shows the IP address of the respective relay interface.
FOUND OPT82	Shows the number of packets received that included option82. This number increases every time a valid DHCP packet that contains option82 arrives on the respective relay interface.

Output field	Description
DROP PKT	Shows the number of packets the interface did not forward. This number increases every time a DHCP packet that has option82 arrives on a relay interface but is not forwarded on the interface towards the server; the path towards the relay can include additional DHCP relays. To determine the cause of the drop, you must enable trace on level 170.
CIRC ID	Show the circuit ID associated with the respective interface.
ADD CIRC	Shows on how many packets the circuit ID was inserted for that interface. This number increases every time the relay adds a circuit id sub-option in a generated option82 packet to send on an interface towards the server. If you expect this value to increase but it does not, and the interface does not drop a packet, it is possible the packet does not have enough space to insert the option. You must enable trace on level 170 to determine the cause.
DEL CIRC	Shows on how many packets the circuit id was removed for that interface. This number increases every time the relay removes a circuit id sub-option from an option82 packet received on a interface towards the server.
REMOTE ID	Shows the remote ID associated with the respective interface. The value is the MAC address of the interface.
ADD REMID	Shows on how many packets the remote ID was inserted for that interface. This number increases every time the relay adds a remote id sub-option in a generated option82 packet to send through an interface towards a server. If you expect this value to increase but it does not, and the interface does not drop a packet, it is possible the packet does not have enough space to insert the option. You must enable trace on level 170 to determine the cause.
DEL REMID	Shows on how many packets the remote ID was removed for that interface. This number increases every time the relay removes a remote id sub-option from an option82 packet received on an interface towards a server.
ACCESS	Displays the VRF segment name for entries within a Segmented VRF, based on the access level of the entry. If the VRF is not segmented, it displays the standard VRF name.

Example

```
Switch:1>show ip dhcp-relay counters option82
================================================================================
```

```
                    DHCP Counters Option82 - GlobalRouter
================================================================================================
                IP             FOUND DROP CIRC ADD  DEL   REMOTE             ADD    DEL ACCESS
INTERFACE       ADDR           OP82  PKT  ID   CIRC CIRC  ID                 REMID  REMID
------------------------------------------------------------------------------------------------
Port 1/12       192.0.1.10     0     0    395    0   0    00:24:7f:9d:0a:00   0      0   GlobalRouter
Vlan40          192.0.1.20     0     0    2088   0   0    00:24:7f:9d:0a:01   0      0   GlobalRouter
```

show ip dhcp-relay fwd-path

Display information about Dynamic Host Configuration Protocol (DHCP) relay forward paths.

Syntax

- **show ip dhcp-relay fwd-path**
- **show ip dhcp-relay fwd-path [vrf WORD<1-16>]**
- **show ip dhcp-relay fwd-path [vrf WORD<1-16>] [vrfids WORD<0-512>]**
- **show ip dhcp-relay fwd-path [vrfids WORD<0-512>]**

Command Parameters

vrf WORD<1-16>

Specifies the name of the VRF.

vrfids <0-512>

Specifies the ID of the VRF. The value is an integer in the range of 0 to 512.

Default

None.

Command Mode

User EXEC

Command Output

The **show ip dhcp-relay fwd-path** command displays the following information:

Output field	Description
INTERFACE	Shows the VLAN or port associated with the respective relay interface.
SERVER	Specifies the server address.
ENABLE	Specifies if the DHCP-relay forwarding path from the client to the server is enabled on the switch.
MODE	Indicates the configured mode of this interface.

Output field	Description
SRC PORT 67	Specifies that the UDP source port is 67 for BOOTP/DHCP relay request. The default is 68.
ACCESS	Displays the VRF segment name for entries within a Segmented VRF, based on the access level of the entry. If the VRF is not segmented, it displays the standard VRF name.

Example

The following example displays information about DHCP Relay forward paths.

```
Switch:1> show ip dhcp-relay fwd-path

================================================================================
                          DHCP Fwd-path - GlobalRouter
================================================================================
INTERFACE       SERVER           ENABLE    MODE            SRC PORT 67 ACCESS
--------------------------------------------------------------------------------
3.3.3.3         4.4.4.1          FALSE    DHCP & BOOTP      TRUE       GlobalRouter
```

show ip dhcp-relay interface

Display information about the Dynamic Host Configuration Protocol (DHCP) relay configuration for specific interface(s).

Syntax

- **show ip dhcp-relay interface**
- **show ip dhcp-relay interface [gigabitethernet]**
- **show ip dhcp-relay interface [gigabitethernet] <1-4059>**
- **show ip dhcp-relay interface [gigabitethernet] <1-4059> [vrf WORD<1-16>]**
- **show ip dhcp-relay interface [gigabitethernet] <1-4059> [vrfids WORD<0-512>]**
- **show ip dhcp-relay interface [gigabitethernet] <1-4059> {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **show ip dhcp-relay interface [gigabitethernet] [vrf WORD<1-16>]**
- **show ip dhcp-relay interface [gigabitethernet] [vrf WORD<1-16>] [vrfids WORD<0-512>]**
- **show ip dhcp-relay interface [gigabitethernet] [vrfids WORD<0-512>]**
- **show ip dhcp-relay interface [gigabitethernet] {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **show ip dhcp-relay interface [gigabitethernet] {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} [vrf WORD<1-16>]**

- **show ip dhcp-relay interface [gigabitethernet] {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} [vrf WORD<1-16>] [vrfids WORD<0-512>]**
- **show ip dhcp-relay interface [gigabitethernet] {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} [vrfids WORD<0-512>]**
- **show ip dhcp-relay interface [vlan]**
- **show ip dhcp-relay interface [vlan] [<1-4059>]**
- **show ip dhcp-relay interface [vrf WORD<1-16>]**
- **show ip dhcp-relay interface [vrf WORD<1-16>] [vrfids WORD<0-512>]**
- **show ip dhcp-relay interface [vrfids WORD<0-512>]**

Command Parameters

gigabitethernet *{slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

vrf WORD<1-16>

Specifies the name of the VRF.

vrfids <0-512>

Specifies the ID of the VRF. The value is an integer in the range of 0 to 512.

Default

None

Command Mode

User EXEC

Command Output

The **show ip dhcp-relay interface** command displays the following information:

Output field	Description
PORT NUM	Indicates the port number.
VRF NAME	Identifies the VRF name of the DHCP relay interface.
ENABLE	Specifies if the DHCP-relay interface from the client to the server is enabled on the switch
MAX HOP	Displays the maximum number of hops before a DHCP packet is discarded.
MIN SEC	Displays the minimum seconds count for DHCP. If the secs field in the DHCP packet header is greater than this value, the device relays or forwards the packet; otherwise, the packet is dropped.
MODE	Displays the DHCP mode.
ALWAYS BCAST	Specifies the dhcp-relay interface instance is located on bcast.
CIRCUIT ID	Show the circuit ID associated with the respective interface.
REMOTE ID	Shows the remote ID associated with the respective interface.
TRUST CIRC	Displays the DHCP trusted circuit configuration.
SMART RELAY	Displays the status of Smart Relay on the VLAN.

Example

The following example displays information for all interfaces.

```
Switch:1>show ip dhcp-relay interface
================================================================================================================
                                    Port Dhcp
================================================================================================================
PORT     VRF                     MAX MIN                ALWAYS CIRCUIT REMOTE TRUST
NUM      NAME             ENABLE HOP SEC   MODE         BCAST  ID      ID     CIRC
----------------------------------------------------------------------------------------------------------------
1/5      GlobalRouter     false  4   0     dhcp & bootp false  false  false  false


================================================================================================================
                                    Vlan Dhcp
================================================================================================================
VLAN VRF                      MAX MIN                ALWAYS CIRCUIT REMOTE TRUST  SMART
ID   NAME             ENABLE HOP SEC   MODE         BCAST  ID      ID     CIRC   RELAY
----------------------------------------------------------------------------------------------------------------
2    GlobalRouter     false  4   0     dhcp & bootp false  false   false  false  disabled
5    GlobalRouter     true   4   0     dhcp & bootp false  false   false  false  disabled
```

```
All 2 out of 2 of Vlan Dhcp Entries displayed
```

show ip dhcp-server

Displays DHCP Server information.

Syntax

- **show ip dhcp-server**

Command Mode

User EXEC

Command Output

The **show ip dhcp-server** command displays the following information:

Field	Description
Status	Specifies whether DHCP Server is enabled or disabled.
Mgmt-clip status	Specifies whether a management CLIP IP interface is enabled.
Mgmt-clip ip	Displays the IP address of the management CLIP IP interface.
Mgmt VRF	Displays the management VRF (for example, Global Router).
HA peer	Displays the IP address of the peer switch in a High Availability pair.
Administrative HA role	Displays the HA role that the admin has configured for this switch in an HA pair. The values are **primary**, **standby**, or **default**. If an administrator did not apply a setting, the value is **default**.
Operational HA role	Displays the role that the switch plays in an HA pair. The possible values are **primary** or **standby** and are derived as follows: • If the Administrative HA role for this switch is **primary** or **standby**, the Operational HA role has the same value. • If the Administrative HA role is **default**, then the switch with the lower Management CLIP IP address in an HA pair has an Operational HA role of **primary** and the switch with the higher Management CLIP IP address has an Operational HA role of **standby**.
HA Status	Displays the status of the HA sync between the two switches.

Field	Description
Lease-time	Displays the lease timer that is configured for DHCP Server globally. The default value is 86400.
Authoritative	Displays whether Authoritative mode is enabled or disabled.
Netbios-name-server	Displays the IP address of the NetBIOS name server that is assigned to DHCP Server globally.
Netbios-type	Displays the global node type of the NetBIOS server that is assigned to DHCP Server. The values are: • 0x1—B node • 0x2—P node • 0x4—M node • 0x8—H node • 0x0—Unconfigured (this is the default value)
TFTP Server IP (opt 66)	Displays the IP address of the TFTP server that is assigned to DHCP Server globally.
TFTP Server Name	Displays the server name of the TFTP server that is assigned to DHCP Server globally.
TFTP bootfile-Name	Displays the filename of the TFTP boot image that is assigned to DHCP Server globally.
Domain Name	Displays the domain name that is assigned to DHCP Server globally.
DNS Server	Displays the IP address of the DNS server(s) assigned to DHCP Server globally, if configured.
NTP Server	Displays the IP address of the NTP server(s) assigned to DHCP Server globally, if configured.
TFTP server list (opt 150)	Displays a list of up to eight TFTP server IP addresses, if configured. The addresses display in order of configuration in the list, for example, TFTP Server 1, TFTP Server 2, and so on.

Example

The following example shows output for the `show ip dhcp-server` command.

```
Switch:1#show ip dhcp-server
================================================================================
                              DHCP Server Settings
================================================================================
Status                    : enabled

Mgmt-clip status          : enabled
Mgmt-clip IP              : 203.0.113.240
Mgmt VRF                  : GlobalRouter

HA peer                   : 0.0.0.0
Administrative HA role    : default
Operational HA role       : standby
HA Status                 : Initialising
```

```
Lease-time                : 5550
Authoritative             : disabled
Netbios-name-server       : 0.0.0.0
Netbios-type              : 0x0

TFTP Server IP (opt 66)   : 203.0.113.50

TFTP Server Name          : central
TFTP bootfile-name        :

Domain Name               :
NTP Server 1              : 203.0.113.60
NTP Server 2              : 203.0.113.61
NTP Server 3              : 203.0.113.62
--------------------------------------------------------------------------------
```

show ip dhcp-server custom-option-data

Displays DHCP custom option data.

Syntax

- **show ip dhcp-server custom-option-data**

Command Mode

User EXEC

Command Output

The **show ip dhcp-server custom-option-data** command displays the following information:

Output field	Description
SCOPE	Displays the DHCP custom option data entries.
CODE	Displays the DHCP code that identifies the custom option.
TYPE	Displays the data type that is defined for this custom option. The data type can be an IPv4 address, 32-bit integer, or string.
VALUE	Displays the data value that is assigned to this custom option within the specified subnet.

Example

```
switch:1#show ip dhcp-server custom-option-data
================================================================================
                          DHCP Server Custom Option Data
================================================================================
SCOPE                CODE   TYPE           VALUE
--------------------------------------------------------------------------------
Global               250    ipv4-address   203.0.113.5
198.51.100.0/24      250    ipv4-address   203.0.113.23
```

```
vendor-class-20      246    ipv4-address   192.0.2.24
-------------------------------------------------------------------------------
 Total Number of DHCP Server custom-options displayed: 3
-------------------------------------------------------------------------------
```

show ip dhcp-server custom-option-def

Displays custom vendor option data for the vendor class.

Syntax

- **show ip dhcp-server custom-option-def**

Command Mode

User EXEC

Command Output

The **show ip dhcp-server custom-option-def** command displays the following information:

Output field	Description
CODE	Displays the DHCP code that is defined for this option.
TYPE	Displays the data type defined for the vendor option. The data type can be an IPv4 address, 32-bit integer, or string.
NAME	Displays the readable text label defined for the vendor option.

Example

The following example displays output for the `show ip dhcp-server custom-option-def` command.

```
Switch:1>show ip dhcp-server custom-option-def
===============================================================================
                      DHCP Server Defined Custom Options
===============================================================================
CODE   TYPE           NAME
-------------------------------------------------------------------------------
250    ipv4-address   Test server
-------------------------------------------------------------------------------
```

show ip dhcp-server host

Displays host information for DHCP Server.

Syntax

- **show ip dhcp-server host [detail] [0x00:0x00:0x00:0x00:0x00:0x00]**

Command Parameters

0x00:0x00:0x00:0x00:0x00:0x00

Specifies the MAC address of the host. Include this parameter to view information on a specific host.

detail

Displays a more detailed summary of host information.

host

Displays a list of hosts on DHCP Server. You can add the optional parameters to change the output.

Command Mode

User EXEC

Command Output

The **show ip dhcp-server host [detail] [0x00:0x00:0x00:0x00:0x00:0x00]** command displays the following information:

Output field	Description
MAC ADDRESS	Specifies the MAC address of the host.
SUBNET	Specifies the subnet to which the host belongs.
IP ADDRESS	Specifies the IP address of the host.
Host-Name	Specifies the hostname of the host.
TFTP Server hostname	Specifies the hostname of the TFTP server that the host uses.
TFTP Server IP	Specifies the IP address of the TFTP server that the host uses.
TFTP BOOT File Name	Specifies the filename of the boot image that the host uses.

Example

The following example displays the output of the **show ip dhcp-server host** command.

```
Switch:1#show ip dhcp-server host
================================================================================
                            DHCP Server Hosts Info
================================================================================
MAC ADDRESS                  SUBNET             IP ADDRESS
--------------------------------------------------------------------------------
```

```
00-00-5E-00-00-01             198.51.100.0/24     198.51.100.4
00-00-5E-00-00-02             198.51.100.0/24     198.51.100.5
--------------------------------------------------------------------------------
 Total Number of DHCP Server hosts displayed: 0
--------------------------------------------------------------------------------
```

The following example displays output for the **show ip dhcp-server host [detail] [0x00:0x00:0x00:0x00:0x00:0x00]** command.

```
Switch:1#show ip dhcp-server host detail 00-00-5E-00-00-01
================================================================================
                             DHCP Server Hosts Detailed Info
================================================================================

================================================================================
                             Host MAC Address 00-00-5E-00-00-01
================================================================================
Subnet                    : 198.51.100.0/24
IP Address                : 198.51.100.4
Host-Name                 : hostExample
TFTP Server hostname      : hostExample.server
TFTP Server IP            : 203.0.113.45
TFTP BOOT File Name       : hostExample.cfg
--------------------------------------------------------------------------------
 Total Number of DHCP Server hosts displayed: 1
--------------------------------------------------------------------------------
```

show ip dhcp-server leases

Displays lease information for DHCP Server.

Syntax

- **show ip dhcp-server leases [ip {A.B.C.D} | subnet {A.B.C.D/X}]**

Command Paramters

ip {A.B.C.D}

Specifies the IP address of a host. Include this parameter to view lease information for a specific host.

subnet {A.B.C.D/X}

Specifies a subnet address and mask. Include this parameter to view lease information for a specific DHCP subnet.

Command Mode

User EXEC

Command Output

The **show ip dhcp-server leases** command displays the following information:

Output field	Description
IP-ADDRESS	Displays an IP address that has been leased to a host.
MAC-ADDRESS	Displays the MAC address of a host.
LAST-TRANSACTION	Displays the last DHCP-related communication between the host and the DHCP Server.
EXPIRE-TIME	Displays the expiration time for the lease.

Example

The following command displays output for the **show ip dhcp-server leases** command:

```
================================================================================
                            DHCP Server Leases Info
================================================================================
IP-ADDRESS    MAC-ADDRESS        LAST-TRANSACTION     EXPIRE-TIME
--------------------------------------------------------------------------------
198.51.100.4  00-00-5E-00-00-01  2023-08-11T15:15:42  2023-08-11T15:16:42
198.51.100.5  00-00-5E-00-00-02  2023-08-11T15:15:47  2023-08-11T15:16:42
--------------------------------------------------------------------------------
 Total Number of DHCP Server Leases displayed: 2
--------------------------------------------------------------------------------
```

show ip dhcp-server log

Displays the DHCP Server log.

Syntax

- **show ip dhcp-server log**

Command Mode

User EXEC

Usage Guidelines

By default, log entries display from oldest record to the newest.

show ip dhcp-server subnet

Displays information on a DHCP subnet.

Syntax

- **show ip dhcp-server subnet [A.B.C.D/X] [detail]**

Command Parameters

[A.B.C.D/X]

Specifies a subnet network address and mask.

detail

Specifies a detailed summary.

Command Mode

User EXEC

Command Output

The **show ip dhcp-server subnet [A.B.C.D/X] [detail]** command displays the following information:

Output field	Description
SUBNET	Specifies the subnet network address and mask.
IP ADDRESS RANGE	Specifies the starting and ending IP addresses of the address pool.
TOTAL ADDRESSES	Specifies the total number of addresses that the pool allows irrespective of whether those addresses are leased currently.
LEASED ADDRESSES	Specifies the total number of addresses that are leased currently.
LEASE-TIME	Specifies the lease expiration timer that is configured for the subnet. This output field only displays in the detail view.
TFTP Server IP (opt 66)	Specifies the IP address of the TFTP server that the subnet uses. This output field only displays in the detail view.
TFTP Server Name	Specifies the server name of the TFTP server that the subnet uses. This output field only displays in the detail view.
TFTP Bootfile-Name	Specifies the filename of the boot image file that the subnet uses. This output field only displays in the detail view.
Domain name	Specifies the subnet domain name. This output field only displays in the detail view.
Netbios-name-server	Specifies the NetBIOS name server that the subnet uses. This output field only displays in the detail view.

Output field	Description
Netbios-type	Specifies the node type for the NetBIOS name server that the subnet uses. This output field only displays in the detail view.
Router	Specifies the IP address of the subnet router. This output field only displays in the detail view.
DNS	Specifies the IP address of the DNS server that the subnet uses, if configured. This output field only displays in the detail view.
NTP Server	Specifies the IP address of the NTP server that the subnet uses, if configured. This output field only displays in the detail view.
Custom Option <224-254>	Specifies the subnet data value for any DHCP Custom Option, if configured. This value can be an IPv4 address, integer, or string. This output field only displays in the detail view.
TFTP Server list (opt 150)	Displays a list of up to eight TFTP server IP addresses, if configured. The addresses display in order of configuration in the list, for example, TFTP Server 1, TFTP Server 2, and so on. This output field only displays in the detail view.

Example

The following example displays information on a DHCP subnet:

```
Switch:1#show ip dhcp-server subnet
================================================================================================
                                  DHCP Server Subnets Info
================================================================================================
SUBNET            IP ADDRESS RANGE               TOTAL ADDRESSES    LEASED ADDRESSES
------------------------------------------------------------------------------------------------
192.0.2.0/24      192.0.2.1 - 192.0.2.254              254                0
198.51.100.0/24   198.51.100.1 - 198.51.100.80          80                2
------------------------------------------------------------------------------------------------
 Total Number of DHCP Server subnets displayed: 2
------------------------------------------------------------------------------------------------
```

The following example displays detailed information on a DHCP subnet:

```
Switch:1#show ip dhcp-server subnet detail
================================================================================
                       DHCP Server Subnets Detailed Info
================================================================================

================================================================================
                             Subnet 192.0.2.0/24
================================================================================
IP Address Range          : 192.0.2.1 - 192.0.2.254
Total Addresses           : 254
Leased Addresses          : 0
Lease-Time                : 4000
TFTP Server IP (opt 66)   : 0.0.0.0
TFTP Server Name          :
TFTP Bootfile-Name        :
Domain Name               :
```

```
Netbios-name-server       : 0.0.0.0
Netbios-type              : 0x0

Router 1                  : 192.0.2.5

DNS 1                     : 203.0.113.14
DNS 2                     : 203.0.113.15

================================================================================
                              Subnet 198.51.100.0/24
================================================================================
IP Address Range          : 198.51.100.1 - 198.51.100.80
Total Addresses           : 80
Leased Addresses          : 2
Lease-Time                : 4000
TFTP Server IP (opt 66)   : 203.0.113.20
TFTP Server Name          :
TFTP Bootfile-Name        :
Domain Name               :
Netbios-name-server       : 0.0.0.0
Netbios-type              : 0x0

Router 1                  : 198.51.100.79
Router 2                  : 198.51.100.80
NTP Server 1              : 203.0.113.34
Custom-Option 250         : 203.0.113.23
--------------------------------------------------------------------------------
 Total Number of DHCP Server subnets displayed: 2
--------------------------------------------------------------------------------
```

show ip dhcp-server vendor-class

Displays the vendor class information.

Syntax

- **show ip dhcp-server vendor-class [detail]**

Default

None

Command Mode

User EXEC

Command Output

The **show ip dhcp-server vendor-class** command displays the following information:

Output field	Description
VENDOR CLASS	Specifies the vendor class identifier.
MATCHES	Specifies the string to match the client vendor class identifier.

The following example displays the vendor class information:

```
Switch:1>show ip dhcp-server vendor-class
================================================================================
                     DHCP Server Vendor Class Info

================================================================================
VENDOR CLASS         MATCHES
--------------------------------------------------------------------------------
vendor-class-4
telephone
vendor-class-20      printer
--------------------------------------------------------------------------------
 Total Number of DHCP Server vendor classes displayed: 2
--------------------------------------------------------------------------------
```

show ip dhcp-server vendor-option-data

Displays the vendor option data information.

Syntax

- **show ip dhcp-server vendor-option-data**

Default

None

Command Mode

User EXEC

Command Output

The **show ip dhcp-server vendor-option-data** command displays the following information:

Output field	Description
SCOPE	Displays the DHCP vendor option data entries.
CODE	Displays the DHCP code that identifies the vendor option.
TYPE	Displays the data type defined for the vendor option. The data type can be an IPv4 address, 32-bit integer, or string.
VALUE	Displays the data value assigned to the vendor option.

The following example displays the DHCP server vendor option data information:

```
Switch:1#show ip dhcp-server vendor-option-data
================================================================================
                        DHCP Server Vendor Option Data
================================================================================
SCOPE                CODE   TYPE           VALUE
--------------------------------------------------------------------------------
```

```
Global               1      string         voss
Global               2      uint32         46
vendor-class-20      2      uint32         1337
--------------------------------------------------------------------------------
 Total Number of DHCP Server custom-options displayed: 4
--------------------------------------------------------------------------------
```

show ip dhcp-server vendor-option-def

Displays the vendor option definitions information.

Syntax

- **show ip dhcp-server vendor-option-def**

Default

None

Command Mode

User EXEC

Command Output

The **show ip dhcp-server vendor-option-def** command displays the following information:

Output field	Description
CODE	Specifies the vendor option definition.
TYPE	Specifies the vendor option definition data type.
NAME	Specifies the text label that identifies the vendor option definition.

The following example displays DHCP server vendor option definitions information:

```
Switch:1>show ip dhcp-server vendor-option-def
================================================================================
                       DHCP Server Defined Vendor Options
================================================================================
CODE   TYPE           NAME
--------------------------------------------------------------------------------
1      string         -
2      uint32         firmware
--------------------------------------------------------------------------------
```

show ip dhcp-snooping

Displays DHCP Snooping global configuration.

Syntax

- **show ip dhcp-snooping**
- **show ip dhcp-snooping vlan <1-4059>**
- **show ip dhcp-snooping vrf WORD<1-16>**
- **show ip dhcp-snooping vrfids WORD<0-512>**

Command Parameters

vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

vrf WORD<1-16>

Specifies the name of the VRF.

vrfids <0-512>

Specifies the ID of the VRF. The value is an integer in the range of 0 to 512.

Default

None

Command Mode

User EXEC

show ip dhcp-snooping binding

Displays DHCP Snooping binding table information.

Syntax

- **show ip dhcp-snooping binding**
- **show ip dhcp-snooping binding vlan <1-4059>**
- **show ip dhcp-snooping binding vrf WORD<1-16>**
- **show ip dhcp-snooping binding vrfids WORD<0-512>**

Command Parameters

vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

vrf WORD<1-16>

Specifies the name of the VRF.

vrfids <0-512>

Specifies the ID of the VRF. The value is an integer in the range of 0 to 512.

Default

None

Command Mode

User EXEC

show ip dhcp-snooping binding address

Displays DHCP Snooping binding table information based on address type.

Syntax

- **show ip dhcp-snooping binding address {A.B.C.D}**
- **show ip dhcp-snooping binding address 0x00:0x00:0x00:0x00:0x00:0x00**

Command Parameters

{A.B.C.D}

Displays DHCP Snooping binding table information for the specified IP address.

0x00:0x00:0x00:0x00:0x00:0x00

Displays DHCP Snooping binding table information for the specified MAC address.

Default

None

Command Mode

User EXEC

show ip dhcp-snooping binding interface

Displays DHCP Snooping binding table information based on interface type.

Syntax

- **show ip dhcp-snooping binding interface**
- **show ip dhcp-snooping binding interface gigabitEthernet [{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

gigabitEthernet *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Displays DHCP Snooping binding table information for the specified port number.

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

User EXEC

show ip dhcp-snooping binding summary

Displays DHCP Snooping binding table summary.

Syntax

- **show ip dhcp-snooping binding summary [{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}] [<1-4059>] [vrf WORD<1-16>] [vrfids WORD<0-512>]**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

<1-4059>

Displays DHCP Snooping binding table summary for the specified VLAN.

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

vrf WORD<1-16>

Displays DHCP Snooping binding table summary for a particular VRF.

vrfids WORD<0-512>

Displays DHCP Snooping binding table summary for a particular VRF ID.

Default

None

Command Mode

User EXEC

show ip dhcp-snooping binding type

Displays DHCP Snooping binding table information based on entry type.

Syntax

- **show ip dhcp-snooping binding type dynamic**
- **show ip dhcp-snooping binding type static**

Command Parameters

dynamic

Displays DHCP Snooping binding table information for dynamic entries.

static

Displays DHCP Snooping binding table information for static entries.

Default

None

Command Mode

User EXEC

show ip dhcp-snooping interface

Displays DHCP Snooping interface configuration.

Syntax

- **show ip dhcp-snooping interface**
- **show ip dhcp-snooping interface vlan**
- **show ip dhcp-snooping interface vlan <1-4059>**
- **show ip dhcp-snooping interface vrf WORD<1-16>**
- **show ip dhcp-snooping interface vrfids WORD<0-512>**

Command Parameters

vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

vrf WORD<1-16>

Displays DHCP Snooping configuration for a particular VRF.

vrfids WORD<0-512>

Displays DHCP Snooping configuration for a particular VRF ID.

Default

None

Command Mode

User EXEC

show ip dhcp-snooping interface gigabitEthernet

Displays DHCP Snooping configuration on the port.

Syntax

- **show ip dhcp-snooping interface gigabitEthernet [{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}] [vrf WORD<1-16>] [vrfids WORD<0-512>] [<1-4059>]**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Displays DHCP Snooping configuration for a particular port.

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

<1-4059>

Displays the DHCP Snooping VLAN configuration.

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

vrf WORD<1-16>

Displays DHCP Snooping configuration for a particular VRF.

vrfids WORD<0-512>

Displays DHCP Snooping configuration for a particular VRF ID.

Default

None

Command Mode

User EXEC

show ip directed-broadcast interface

Show the interface status for direct broadcast.

Syntax

- **show ip directed-broadcast interface**
- **show ip directed-broadcast interface GigabitEthernet**
- **show ip directed-broadcast interface GigabitEthernet {slot/port[sub-port]}**

Command Parameters

interface GigabitEthernet {slot/port[sub-port]}

Identifies a single slot and port. If your platform supports channelization and the port is channelized, you can also specify the subport in the format slot/port/sub-port.

Default

None

Command Mode

User EXEC

show ip directed-broadcast vlan

Displays Vlan IDs with directed broadcast enabled.

Syntax

- **show ip directed-broadcast vlan**

Default

None

Command Mode

User EXEC

show ip dns

View the DNS client system status.

The **show sys dns** command returns the same output.

Syntax

- **show ip dns**

Default

None

Command Mode

User EXEC

show ip ecmp

Display the prefix list of routes with number of ECMP paths.

Syntax

- **show ip ecmp max-path [vrf WORD<1-16>] [vrfids WORD<0-512>]**
- **show ip ecmp <pathlist-1 | pathlist-2 | pathlist-3 | pathlist-4 | pathlist-5 | pathlist-6 | pathlist-7 | pathlist-8> [vrf WORD<1-16>] [vrfids WORD<0-512>]**

Command Parameters

max-path

Displays the configured maximum number of Equal Cost Multipath (ECMP) paths.

vrf WORD<1-16>

Displays the prefix list of routes for a particular VRF. WORD<1-16> specifies the VRF name.

vrfids WORD<0-512>

Displays the prefix list of routes for a particular VRF ID. WORD<0-512> specifies the VRF ID.

Default

None

Command Mode

User EXEC

show ip extcommunity-list

Show extended community list information.

Syntax

- **show ip extcommunity-list**
- **show ip extcommunity-list <1-1024>**
- **show ip extcommunity-list <1-1024> vrf WORD<1-16>**
- **show ip extcommunity-list <1-1024> vrfids WORD<0-512>**
- **show ip extcommunity-list vrf WORD<1-16>**
- **show ip extcommunity-list WORD<0-512>**

Command Parameters

<1-1024>

Specifies the extended community list ID.

vrf WORD<1-16>

Displays extended community list for a particular VRF.

vrfids WORD<0-512>

Specifies VRF IDs.

Default

None

Command Mode

User EXEC

show ip forward-protocol udp

Display the UDP protocol table with the UDP port numbers for each supported or designated protocol.

Syntax

- **show ip forward-protocol udp**
- **show ip forward-protocol udp [vrf WORD<1-16>] [vrfids <0-512>]**
- **show ip forward-protocol udp interface**

- **show ip forward-protocol udp interface {A.B.C.D}**
- **show ip forward-protocol udp interface vrf WORD<1-16>**
- **show ip forward-protocol udp interface vrfids WORD<0-512>**
- **show ip forward-protocol udp vrf WORD<1-16>**
- **show ip forward-protocol udp vrfids WORD<0-512>**

Command Parameters

interface <A.B.C.D>

Displays information about the UDP interface for all IP addresses or a specified IP address.

portfwd

Displays the UDP port forwarding table.

portfwdlist <1-1000>

Displays the UDP port forwarding list table for the specified list or all lists on the switch. <1-1000> specifies the port forward list ID.

vrf WORD<1-16>

Specifies the name of the VRF in the range of 0 to 16 characters.

vrfids <0-512>

Specifies the ID of the port and is an integer in the range of 0 to 512.

Default

None

Command Mode

User EXEC

show ip forward-protocol udp portfwd

View and confirm the port forward entry configuration.

Syntax

- **show ip forward-protocol udp portfwd**
- **show ip forward-protocol udp portfwd [vrf WORD<1-16>][vrfids <0-512>]**

Command Parameters

vrf WORD<1-16>

Specifies the name of the VRF in the range of 0 to 16 characters.

vrfids <0-512>

Specifies the ID of VRF and is an integer between 0 and 512.

Default

None

Command Mode

User EXEC

show ip forward-protocol udp portfwdlist

View and confirm the configuration setting on the IP forwarding list.

Syntax

- **show ip forward-protocol udp portfwdlist**
- **show ip forward-protocol udp portfwdlist <1-1000>**
- **show ip forward-protocol udp portfwdlist <1-1000> [vrf WORD<1-16>] [vrfids <0-512>]**
- **show ip forward-protocol udp portfwdlist vrf WORD<1-16>**
- **show ip forward-protocol udp portfwdlist vrfids WORD<0-512>**

Command Parameters

<1-1000>

Specifies the port forward list id which is an integer in the range of 1 to 1000.

vrf WORD<1-16>

Specifies the name of the VRF in the range of 0 to 16 characters.

vrfids <0-512>

Specifies the ID of the port and is an integer in the range of 0 to 512.

Default

None

Command Mode

User EXEC

show ip global

Display the global IPv4 configuration information.

Syntax

- **show ip global**
- **show ip global vrf WORD<1-16>**
- **show ip global vrfids WORD<0-512>**

Command Parameters

vrf WORD<1-16>

Specifies a VRF name. The VRF parameter is optional.

vrfids WORD<0-512>

Specifies a VRF by ID. The VRF parameter is optional.

Default

None

Command Mode

User EXEC

Examples

The following example displays information of ICMP drop packet filtering for IPv4 network:

```
Switch:1>show ip global

================================================================================

                     IPv4 Global Information - GlobalRouter

================================================================================

        icmp-drop-fragments            : disable
```

show ip icmp statistics

Show the collective IPv4 ICMP statistics for all VRF instances.

Syntax

- **show ip icmp statistics**

Default

None

Command Mode

User EXEC

show ip interface

Shows the IP configuration for an interface.

This command displays only primary IP interfaces. To view output that includes secondary IP interfaces, use the **show ip address** command.

Syntax

- **show ip interface [vrf WORD<1-16>] [vrfids WORD<0-512>]**
- **show ip interface gigabitethernet [<1-4059>] [{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]**

Command Parameters

gigabitethernet *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

vrf WORD<1-16>

Specifies the name of the VRF.

vrfids WORD <0-512>

Specifies the VRF ID.

Default

None

Command Mode

User EXEC

Command Output

The **show ip interface** command displays the following information:

Output field	Description
INTERFACE	Indicates the slot and port.
IP ADDRESS	Indicates the IP address.
NET MASK	Indicates a subnet mask of an IP address.
ADMIN STATUS	Indicates if the IP interface is administratively enabled or disabled.
OPER STATE	Indicates if the IP interface is operationally up or down.
VLAN ID	Indicates the VLAN ID associated with this IP interface.
BROUTER PORT	Indicates whether the port is a brouter port or a routeable VLAN.
IPSEC STATE	Indicates whether the IPsec policy is enabled on the interface.
ACCESS	Displays the VRF segment name for entries within a Segmented VRF, based on the access level of the entry. If the VRF is not segmented, it displays the standard VRF name.
IP NAME	Indicates the IP name given to the IP address.

Example

The following example displays the command output.

```
Switch:1>show ip interface
=================================================================================================
                          IP Interface - GlobalRouter
=================================================================================================
INTERFACE  IP            NET            ADMIN     OPER    VLAN  BROUTER   IPSEC   ACCESS       IP
           ADDRESS       MASK           STATUS    STATE   ID    PORT      STATE                NAME
-------------------------------------------------------------------------------------------------
Port1/2    192.0.2.1     255.255.255.0  enable    up      20    true      disable GlobalRouter
Vlan10     198.51.100.0  255.255.255.0  disable   down    10    false     disable GlobalRouter

All 2 out of 2 Total Num of IP interfaces displayed
```

show ip ipfix

Display IPFIX global status.

Syntax

- **show ip ipfix**

Default

None

Command Mode

User EXEC

show ip ipfix collector

Display information about the IPFIX collector.

Syntax

- **show ip ipfix collector <1-1>**

Command Parameters

<1–1>

Specifies the IPFIX collector ID.

Default

None

Command Mode

User EXEC

show ip ipfix flows

Display information about IPFIX flows.

Syntax

- **show ip ipfix flows**
- **show ip ipfix flows source-addr {A.B.C.D} dest-addr {A.B.C.D} source-port <1-65535> dest-port <1-65535> protocol { udp | tcp } in-vrf <0-511> {in-vlan <1-4095> | untagged} ip-ttl <0-255>**

Command Parameters

dest-addr {A.B.C.D}

Specifies an IP address for the flow destination.

dest-port <1-65535>

Specifies a value for the destination port.

in-vlan <1-4095> >

Specifies an ingress VLAN ID for the flow.

in-vrf <0-511> >

Specifies the IP time-to-live (TTL) for the flow.

ip-ttl <0-255>

Specifies the IP time-to-live (TTL) for the flow.

protocol {udp | tcp}

Specifies the transport protocol.

source-addr {A.B.C.D}

Specifies an IP address for the flow source.

source-port <1-65535>

Specifies a value for the source port.

untagged

Specifies ingress untagged flows.

Default

None

Command Mode

User EXEC

show ip ipvpn

Display the configuration for IP VPN enabled VRFs.

Syntax

- **show ip ipvpn [vrf WORD<1-16>] [vrfids WORD<0-512>]**

Command Parameters

vrf WORD<1-16>

Specifies a VRF.

vrfids WORD<0-512>

Specifies the VRF ID.

Default

None

Command Mode

User EXEC

Command Output

The **show ip ipvpn** command displays the following information:

Output field	Description
VRF Name	Displays the VRF name.
VRF ID	Displays the VRF ID.
IPv4 IPVPN	Displays if IPv4 IPVPN is enabled on the VRF.
IPv6 IPVPN	Displays if IPv6 IPVPN is enabled on the VRF.
Trusted I-SID	Displays the trusted I-SID if IPv4 IPVPN is configured on a Segmented VRF. If IPv4 IPVPN is configured on a non-Segmented VRF, this value is the traditional I-SID associated with IPVPN
Unrestricted I-SID	Displays the unrestricted I-SID if IPv4 IPVPN is configured on a Segmented VRF.
Untrusted I-SID	Displays the untrusted I-SID if IPv4 IPVPN is configured on a Segmented VRF.
I-SID Name	Displays the I-SID name.

Example

The following example displays the command output.

```
Switch:1>show ip ipvpn
================================================================================================================================
                                                IPv4 IPVPN
================================================================================================================================
                                               Trusted      Unrestricted     Untrusted
VRF Name            VRF ID   IPv4 IPVPN   IPv6 IPVPN   I-SID        I-SID            I-SID            I-SID Name
--------------------------------------------------------------------------------------------------------------------------------
sales                1        enabled      disabled     1010         1011             1012             ISID-1010
--------------------------------------------------------------------------------------------------------------------------------
1 out of 1 Total IPv4 L3 VSN, 1 active IPv4 and 0 active IPv6 displayed.
```

show ip isid-list

Displays I-SID list information.

Syntax

- **show ip isid-list**
- **show ip isid-list vrf WORD<1-16>**
- **show ip isid-list WORD<1-32>**
- **show ip isid-list WORD<1-32> vrf WORD<1-16>**

Command Parameters

vrf WORD<1-16>

Displays I-SID list information for a particular VRF by name.

WORD<1-32>

Displays I-SID list information for a particular I-SID list by name.

Default

None

Command Mode

User EXEC

show ip isis redistribute

Display the redistribution configuration.

Syntax

- **show ip isis redistribute**
- **show ip isis redistribute vrf WORD<1-16>**
- **show ip isis redistribute vrf WORD<1-16> vrfids WORD<0-512>**
- **show ip isis redistribute vrfids WORD<0-512>**

Command Parameters

vrf WORD<1-16>

Specifies a particular VRF. Type a name between 0-16 characters in length.

vrfids WORD<0-512>

Specifies the VRF ID.

Default

None

Command Mode

User EXEC

show ip mroute hw-resource-usage

View multicast hardware resource usage. The range of values depends on the hardware platform.

Syntax

- **show ip mroute hw-resource-usage**
- **show ip mroute hw-resource-usage vrf WORD<1-16>**
- **show ip mroute hw-resource-usage vrf WORD<1-32>**
- **show ip mroute hw-resource-usage vrfids WORD<0-255>**
- **show ip mroute hw-resource-usage vrfids WORD<0-512>**

Command Parameters

vrf WORD<1-32> | vrf WORD<1-16>

Specifies a VRF by name. Range depends on hardware platform.

vrfids WORD <0-255> | vrfids WORD <0-512>

Specifies a VRF by ID. Range depends on hardware platform.

Default

None

Command Mode

User EXEC

Usage Guidelines

This command is not supported on a node configured as the DvR Leaf within a DvR domain.

Command Output

The **show ip mroute hw-resource-usage** command displays the following information:

Output field	Description
EGRESS REC IN-USE	Displays the number of egress records traversing the switch.
INGRESS REC IN-USE	Displays the number of ingress records (source or group) traversing the switch.
EGRESS THRESHOLD	Displays the configured egress threshold level. A notification message is sent if this value is exceeded. The default is 0.
INGRESS THRESHOLD	Displays the configured ingress threshold level. A notification message is sent if this value is exceeded. The default is 0.

Output field	Description
LOG MSG ONLY	Displays whether only log notification messages are sent after the threshold level is exceeded. The default is false (disabled).
SEND TRAP ONLY	Displays whether only trap notification messages are sent after the threshold level is exceeded. The default is false (disabled).
SENT TRAP AND LOG	Displays whether both trap and log notification messages are sent after the threshold level is exceeded. The default is false (disabled).

Example

The following example displays the hardware resource usage.

```
Switch:1>show ip mroute hw-resource-usage
================================================================================
                        Multicast Hardware Resource Usage
================================================================================
EGRESS      INGRESS     EGRESS      INGRESS     LOG MSG   SEND TRAP  SEND TRAP

REC IN-USE  REC IN-USE  THRESHOLD   THRESHOLD   ONLY      ONLY       AND LOG

--------------------------------------------------------------------------------
0           0           0           0           false     false      false
```

show ip mroute interface

Display information about the interface for the multicast routes set up on the switch.

Syntax

- **show ip mroute interface [gigabitethernet [{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]]**

Command Parameters

gigabitethernet *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

User EXEC

Usage Guidelines

This command is not supported on a node configured as the DvR Leaf within a DvR domain.

The following message displays if the system shuts down the port due to excessive multicast streams:

```
Shutdown port <port> due to excessive multicast streams <# of
streams ingressed>; Configured limit max streams <configured limit> in
<configured sampling interval> sec. Please disable and re-enable the
port.
```

Command Output

The **show ip mroute interface** command displays the following information:

Output field	Description
INTERFACE	Indicates the interface.
TTL	Indicates the datagram TTL threshold for the interface. IP multicast datagrams with a TTL less than this threshold are not forwarded out of the interface. The default value of 0 means all multicast packets are forwarded out of the interface.
PROTOCOL	Indicates the routing protocol running on this interface.
PORT	Shows the slot and port location.
MROUTE STR LIMIT	Indicates the maximum number of multicast streams that can enter the CPU through this port.
MROUTE STR LIMIT TMR	Indicates the sampling period (in seconds) to check number of multicast streams that enter the CPU through this port.
ENABLE	Indicates the status of the mroute stream limit on the port.

show ip mroute next-hop

Display information about the next hop for the multicast routes set up on the switch. The range of values depends on the hardware platform.

Syntax

- **show ip mroute next-hop**
- **show ip mroute next-hop vrf WORD<1-16>**
- **show ip mroute next-hop vrf WORD<1-32>**
- **show ip mroute next-hop vrfids WORD<0-255>**
- **show ip mroute next-hop vrfids WORD<0-512>**

Command Parameters

vrf WORD<1-32> | vrf WORD<1-16>

Specifies a VRF by name. Range depends on hardware platform.

vrfids WORD <0-255> | vrfids WORD <0-512>

Specifies a VRF by ID. Range depends on hardware platform.

Default

None

Command Mode

User EXEC

Command Output

The **show ip mroute next-hop** command displays the following information:

Output field	Description
INTERFACE	Indicates the interface identity.
GROUP	Indicates the IP multicast group for which this entry specifies a next-hop PIM neighbor toward receivers for a specific outgoing interface.
SOURCE	Indicates the network address, which when combined with the corresponding value of SRCMASK, identifies the sources for which this entry specifies a next-hop PIM neighbor toward receivers for a specific outgoing interface.
SRCMASK	Indicates the network mask, which when combined with the corresponding value of SOURCE, identifies the sources for which this entry specifies a next-hop PIM neighbor toward receivers for a specific outgoing interface.
ADDRESS	Indicates the address of the next hop specific to this entry. The next hop must be the address of a PIM neighbor. This table does not represent local receivers.

Output field	Description
STATE	Indicates whether the outgoing interface and next hop represented by this entry currently forward IP datagrams. The value forwarding indicates the information is currently used; the value pruned indicates it is not used.
EXPTIME	Indicates the minimum amount of time that remains before this entry ages out. The value 0 indicates that the entry is not subject to aging.
CLOSEHOP	Indicates the minimum number of hops between this router and members of this IP multicast group reached through this next hop on this outgoing interface. IP multicast datagrams for the group that use a time-to-live less than this number of hops are forwarded to the next hop
PROTOCOL	Indicates the routing mechanism through which the switch learned this next hop.
L2ISID	Indicates the I-SID associated with the Layer 2 interface.

show ip mroute route

Display information about the multicast routes set up on the switch. The range of values depends on the hardware platform.

Syntax

- **show ip mroute route**
- **show ip mroute route vrf WORD<1-16>**
- **show ip mroute route vrf WORD<1-32>**
- **show ip mroute route vrfids WORD<0-255>**
- **show ip mroute route vrfids WORD<0-512>**

Command Parameters

vrf WORD<1-32> | vrf WORD<1-16>

Specifies a VRF by name. Range depends on hardware platform.

vrfids WORD <0-255> | vrfids WORD <0-512>

Specifies a VRF by ID. Range depends on hardware platform.

Default

None

Command Mode

User EXEC

Usage Guidelines

This command is not supported on a node configured as the DvR Leaf within a DvR domain.

In this output, every stream uses one (*,G) entry and x (S,G) entries, depending on how many servers forward traffic to the same group.

The 0.0.0.0 mask is always tied to a (*,G) entry.

Every time a new stream comes in, Protocol Independent Multicast (PIM) creates two entries in the table; one is a (*,G) entry that points toward the rendezvous point (RP) router, and the other is an (S,G) entry that points toward the source.

Command Output

The **`show ip mroute route`** command displays the following information:

Output field	Description
GROUP	Indicates the IP multicast group for this multicast route.
SOURCE	Indicates the network address that, when combined with the corresponding value of SRCMASK, identifies the sources for this multicast route.
SRCMASK	Indicates the network mask that, when combined with the corresponding value of SOURCE, identifies the sources for this multicast route.
UPSTREAM_NBR	Indicates the address of the upstream neighbor from which IP datagrams from these sources to this multicast address are received, or 0.0.0.0 if the (S,G) source is local or if the RP for this the (*,G) group is an address on this router.
IF	Indicates the value of ifIndex for the interface that receives IP datagrams sent by these sources to this multicast address. A value of 0 in a (*,G) route indicates that datagrams are not subject to an incoming interface check, but datagrams can be received on any interface.
EXPIR	Indicates the minimum amount of time remaining before this entry ages out. The value 0 indicates that the entry is not subject to aging. **Note:** The value you configure for fwd-cache-timeout applies only to the locally learned sender; it does not apply to SMLT synchronized sender records.
PROT	Indicates the multicast protocol through which the switch learned this route.

Example

The following example displays information about the multicast routes on the switch.

```
Switch:1>show ip mroute route

================================================================================
                          Mroute Route - GlobalRouter
================================================================================
GROUP           SOURCE          SRCMASK         UPSTREAM_NBR    IF     EXPIR  PROT
--------------------------------------------------------------------------------
233.252.0.1       0.0.0.0         0.0.0.0         0.0.0.0        V3       30 spb-access
233.252.0.1       192.0.2.102     255.255.255.0   0.0.0.0        -        0  spb-network
233.252.0.2       0.0.0.0         0.0.0.0         0.0.0.0        V2      30  pimsm
225.1.1.1         198.51.100.99   255.255.255.0   0.0.0.0        V3      173 spb-pim-gw

Total 4
```

show ip mroute static-source-group

Display information about the static source groups on the current interface. The range of values depends on the hardware platform.

Syntax

- **show ip mroute static-source-group**
- **show ip mroute static-source-group <A.B.C.D>**
- **show ip mroute static-source-group <A.B.C.D> vrf WORD<1-16>**
- **show ip mroute static-source-group <A.B.C.D> vrf WORD<1-32>**
- **show ip mroute static-source-group <A.B.C.D> vrfids WORD<0-255>**
- **show ip mroute static-source-group <A.B.C.D> vrfids WORD<0-512>**

Command Parameters

<A.B.C.D>

Specifies the group IP address.

vrf WORD<1-32> | vrf WORD<1-16>

Specifies a VRF by name. Range depends on hardware platform.

vrfids WORD <0-255> | vrfids WORD <0-512>

Specifies a VRF by ID. Range depends on hardware platform.

Default

None

Command Mode

User EXEC

Usage Guidelines

This command is not supported on a node configured as the DvR Leaf within a DvR domain.

You can use this command to see all valid entries that were created. If an entry is created with a x bit mask, it shows as a x bit in the output.

Command Output

The **show ip mroute static-source-group** command displays the following information:

Output field	Description
Group Address	Indicates the IP multicast group address.
Source Address	Indicates the network address.
Subnet Mask	Indicates the network mask.

show ip mroute stats

Display IP multicast route statistics.

Syntax

- **show ip mroute stats**
- **show ip mroute stats [WORD<3-160> {A.B.C.D[,E.F.G.H][,...]}]**

Command Parameters

WORD<3-160> {A.B.C.D[,E.F.G.H][,...]}

Displays the IP multicast route statistics.

Default

None

Command Mode

User EXEC

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

Command Output

The **show ip mroute stats** command displays the following information:

Output field	Description
GroupAddress	Specifies the multicast group IP address for which to show statistics.
SourceCounter	Specifies the number of sources associated with the multicast route record.
IngressPackets	Specifies the number of packets received for the associated IP address.
IngressBytes	Specifies the number of bytes received for the associated IP address.
AverageSize	Specifies the average packet length for the associated group IP address. This information indicates only the ingress packet length and is calculated using the formula: ingress packet/ ingress byte.

show ip ospf accept

Display information about the configured OSPF entries.

Syntax

- **show ip ospf accept**
- **show ip ospf accept vrf WORD<1-16>**
- **show ip ospf accept vrfids WORD<0-512>**

Command Parameters

vrf ids WORD<0-512>

Specifies the ID of the VRF.

vrf WORD<1-16>

Specifies the name of the VRF.

Default

None

Command Mode

User EXEC

Command Output

The **show ip ospf accept** command displays the following information:

Output field	Description
ADV_RTR	Indicates the router advancing the packets.
MET_TYPE	Indicates the metric type for the routes to import into OSPF routing protocol, which passed the matching criteria configured in this route policy. Options include: local, internal, external, externaltype1, and externaltype2.
ENABLE	Indicates if the policy is enabled.
POLICY	Indicates the type of policy.

Example

The following example displays information about the configured OSPF entries.

```
Switch:1>show ip ospf accept
================================================================================
                           Ospf Accept - GlobalRouter
================================================================================
ADV_RTR         MET_TYPE ENABLE POLICY
--------------------------------------------------------------------------------
192.0.2.11      type1    true   test1
```

show ip ospf area

Display OSPF area information to ensure accuracy.

Syntax

- **show ip ospf area**
- **show ip ospf area vrf WORD<1-16>**
- **show ip ospf area vrfids WORD<0-512>**

Command Parameters

vrf WORD <1-16>

Specifies a VRF by name.

vrfids WORD<0-512>

Specifies a range of VRF IDs.

Default

None

Command Mode

User EXEC

show ip ospf area-range

Display OSPF area range configuration information to ensure accuracy.

Syntax

- **show ip ospf area-range**
- **show ip ospf area-range vrf <WORD 1-16>**
- **show ip ospf area-range vrfids <WORD 0-512>**

Command Parameters

vrf <WORD 1-16>

Specifies a VRF by name.

vrfids <WORD 0-512>

Specifies a range of VRF IDs.

Default

None

Command Mode

User EXEC

show ip ospf ase

View the link-state database to determine externally learned routing information.

Syntax

- **show ip ospf ase**
- **show ip ospf ase metric-type**
- **show ip ospf ase metric-type <1-2>**
- **show ip ospf ase vrf WORD<1-16>**
- **show ip ospf ase vrfids WORD<0-512>**

Command Parameters

metric-type <1-2>

Specifies the metric type as a string of 1 to 2 characters.

vrf WORD<1-16>

Identifies the VRF by name.

vrfids WORD<0-512>

Specifies a VRF by ID.

Default

None

Command Mode

User EXEC

show ip ospf authentication interface

Display OSPF authentication information to ensure accuracy.

Syntax

- **show ip ospf authentication interface gigabitethernet [{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]**
- **show ip ospf authentication interface vlan [<1-4059>]**

Command Parameters

interface gigabitethernet *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

User EXEC

show ip ospf default-cost

Display OSPF default cost information to ensure accuracy.

Syntax

- **show ip ospf default-cost**
- **show ip ospf default-cost vrf WORD<1-16>**
- **show ip ospf default-cost vrfids WORD<0-512>**

Command Parameters

vrf WORD<1-16>

Specifies a VRF by name.

vrfids WORD<0-512>

Specifies a range of VRF IDs.

Default

None

Command Mode

User EXEC

show ip ospf host-route

Display the host route OSPF information to ensure accuracy.

Syntax

- **show ip ospf host-route**
- **show ip ospf host-route vrf WORD<1-16>**
- **show ip ospf host-route vrfids WORD<0-512>**

Command Parameters

vrf WORD<1-16>

Specifies a VRF by name.

vrfids WORD<0-512>

Specifies a range of VRF IDs.

Default

None

Command Mode

User EXEC

show ip ospf ifstats

Use statistics to help you monitor Open Shortest Path First (OSPF) performance.

Syntax

- **show ip ospf ifstats**
- **show ip ospf ifstats detail [vrf WORD <1-16>] [vrfids WORD<0-512>]**
- **show ip ospf ifstats mismatch [vrf WORD <1-16>] [vrfids WORD<0-512>]**
- **show ip ospf ifstats vlan <1-4059>**
- **show ip ospf ifstats vrf WORD<1-16>**
- **show ip ospf ifstats vrfids WORD<0-512>**

Command Parameters

detail

Displays the details of the OSPF.

mismatch

Specifies the number of times the area ID is not matched.

vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

vrf WORD<1-16>

Specifies a VRF instance by VRF name.

vrfids WORD<0-512>

Specifies a VRF or range of VRFs by ID.

Default

None

Command Mode

User EXEC

Command Output

The **show ip ospf ifstats** command displays the following information:

Field	Description
INTERFACE	Indicates the IP address of the host.
HELLOS RX	Indicates the number of hello packets received by this interface.
HELLOS TX	Indicates the number of hello packets transmitted by this interface.
DBS RX	Indicates the number of database descriptor packets received by this interface.
DBS TX	Indicates the number of database descriptor packets transmitted by this interface.
LS REQ RX	Indicates the number of link state request packets received by this interface.
LS REQ TX	Indicates the number of link state request packets transmitted by this interface.
LS UDP RX	Indicates the number of link state update packets received by this interface.
LS UDP TX	Indicates the number of link state update packets transmitted by this interface.
LS ACK RX	Indicates the number of link state acknowledge packets received by this interface.
LS ACK TX	Indicates the number of link state acknowledge packets transmitted by this interface.
VERSION	Indicates the OSPF version.
AREA	Indicates the OSPF area.
AUTHTYPE	Indicates the OSPF authentication type.
AUTHFAIL	The count of authentication fail messages.
NETMASK	Indicates the net mask.
HELLO	The count of Hello messages.
DEADTRR OPTION	The dead TRR option.

Example

```
Switch:1>show ip ospf ifstats
================================================================================
                    OSPF Interface Statistics - GlobalRouter
================================================================================
                ---HELLOS---- ---DBS--- -LS REQ-- --LS UPD--- --LS ACK---
INTERFACE       RX     TX     RX   TX   RX   TX   RX    TX     RX    Tx
--------------------------------------------------------------------------------
192.0.2.3      76035  76355  33   32   4    9    2483  2551  2525  1247
192.0.2.8      76038  76349  0    0    0    0    0     0     0     0
```

show ip ospf int-auth

Display OSPF authentication information to ensure accuracy.

Syntax

- **show ip ospf int-auth**
- **show ip ospf int-auth [vrf WORD <1-16>] [vrfids WORD<0-512>]**
- **show ip ospf int-auth vrf WORD<1-16>**
- **show ip ospf int-auth vrfids WORD<0-512>**

Command Parameters

vrf WORD<1-16>

Displays ospf authentication configuration for a particular VRF.

vrfids WORD<0-512>

Specifies a range of VRF IDs.

Default

None

Command Mode

User EXEC

show ip ospf interface

Display OSPF information on a particular interface to ensure accuracy.

Syntax

- **show ip ospf interface**
- **show ip ospf interface gigabitethernet [{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]**

- **show ip ospf interface vlan <1-4059>] [vrf WORD<1-16>] [vrfids WORD<0-512>]**

Command Parameters

gigabitethernet *{slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

vrf WORD<1-16>

Displays ospf configuration for a particular VRF.

vrfids WORD<0-512>

Specifies a range of VRF IDs.

Default

None

Command Mode

User EXEC

Command Output

The **show ip ospf interface** command shows the following information:

Output field	Description
INTERFACE	Specifies the IP address of the switch.
AREA ID	Specifies the OSPF area name in dotted-decimal format. For VLANs, keeping the default area setting on the interface causes link-state database (LSDB) inconsistencies. The area name is not related to an IP address. You can use a suitable value for the OSPF area name (for example, 1.1.1.1 or 200.200.200.200).
ADM	Specifies the current administrative status of the OSPF interface (enabled or disabled).
IFST	Specifies the current state of the OSPF interface.
MET	Specifies the metric for the type of service (TOS) on this port. The value of the TOS metric is (10^9 / interface speed). The default is 1. • FFFF - No route exists for this TOS. • IPCP links - Defaults to 0. • 0 - Use the interface speed as the metric value when the state of the interface is up.
PRI	Specifies the OSPF priority to use during the election process for the designated router. The interface with the highest priority becomes the designated router. The interface with the second highest priority becomes the backup designated router. If the priority is 0, the interface cannot become the designated router or the backup. The range is 0–255. The default is 1.
DR/BDR	Specifies the IP address of the designated router and backup designated router.
DR ID/BDR ID	Specifies the router ID of the designated router and backup designated router.
TYPE	Specifies the type of OSPF interface (broadcast, NBMA, passive, or p2p). Before you change an OSPF interface type, you must first disable the interface. If the interface is an NBMA interface, you must also delete all configured neighbors.

Output field	Description
AUTH TYPE	Specifies the type of authentication required for the interface. • none - Specifies that no authentication required. • simple password—Specifies that all OSPF updates received by the interface must contain the authentication key specified in the interface AuthKey parameter. • MD5 authentication—Specifies that all OSPF updates received by the interface must contain the MD5 key. • sha1—Specifies secure hash algorithm (SHA-1), which is a cryptographic hash function that produces a 160-bit hash value, usually given in a hexadecimal number, 40 digits long. You can only access and enable the SHA-1 authentication type after you enable enhanced secure mode. • sha-2—Specifies SHA-2, which offers the hash function SHA-256. Note: sha-2, an update of SHA-1, can offer six hash functions that include SHA-224, SHA-256, SHA-384, SHA-512, SHA-512/224, SHA 512/256, with hash values that are 224, 256, 384, or 512 bits. However, the current release supports only SHA-256.
MTU IGNO	Specifies whether the interface ignores the global maximum transmission unit (MTU) configuration.
LSA COUNT	Specifies the total number of link state advertisements in this area LSDB, excluding AS-external LSAs.
LSA CKSUM SUM	Specifies the number of link-state advertisements. This sum excludes external (LS type 5) link-state advertisements. The sum determines if a change occurred in a router LSDB and compares the LSDB of two routers.
ACCESS	Displays the VRF segment name for entries within a Segmented VRF, based on the access level of the entry. If the VRF is not segmented, it displays the standard VRF name.

Example

The following example displays the command output.

```
Switch:1>show ip ospf interface

================================================================================================================================
                                        OSPF Interface - GlobalRouter
================================================================================================================================
INTERFACE      AREA           ADM IFST MET PRI DR/          DR  ID/        TYPE AUTH     MTU      LSA        LSA CKSUM ACCESS
                ID                            BDR          BDR ID             TYPE     IGNO     COUNT      SUM
--------------------------------------------------------------------------------------------------------------------------------
100.1.1.2     0.0.0.0         en DOWN  10   1  0.0.0.0      0.0.0.0        p2p  none      dis      0          0        GlobalRouter
--------------------------------------------------------------------------------------------------------------------------------

DR_O = DR_OTHER
--------------------------------------------------------------------------------------------------------------------------------
Total ospf areas: 1

Total ospf interfaces: 1
```

show ip ospf int-timers

Display OSPF timers information to ensure accuracy.

Syntax

- **show ip ospf int-timers**
- **show ip ospf int-timers [vrf WORD<1-16>] [vrfids WORD<0-512>]**
- **show ip ospf int-timers vrf WORD<1-16>**
- **show ip ospf int-timers vrfids WORD<0-512>**

Command Parameters

vrf WORD<1-16>

Displays ospf timer configuration for a particular VRF.

vrfids WORD<0-512>

Specifies a range of VRF IDs.

Default

None

Command Mode

User EXEC

show ip ospf lsdb

View the area advertisements and other information contained in the link-state database (LSD) to ensure correct OSPF operations.

Syntax

- **show ip ospf lsdb**
- **show ip ospf lsdb [area <A.B.C.D>] [lsa-type <1-11>] [lsid <A.B.C.D>] [adv-rtr <A.B.C.D>] [vrf WORD<1-16>] [vrfids WORD<0-512>] [detail]**
- **show ip ospf lsdb adv-rtr {A.B.C.D}**
- **show ip ospf lsdb adv-rtr {A.B.C.D} vrf WORD<1-16>**
- **show ip ospf lsdb adv-rtr {A.B.C.D} vrfids WORD<0-512>**
- **show ip ospf lsdb area {A.B.C.D}**
- **show ip ospf lsdb area {A.B.C.D} vrf WORD<1-16>**
- **show ip ospf lsdb area {A.B.C.D} vrfids WORD<0-512>**
- **show ip ospf lsdb detail**
- **show ip ospf lsdb detail vrf WORD<1-16>**
- **show ip ospf lsdb detail vrfids WORD<0-512>**
- **show ip ospf lsdb lsa-type <1-11>**
- **show ip ospf lsdb lsa-type <1-11> vrf WORD<1-16>**
- **show ip ospf lsdb lsa-type <1-11> vrfids WORD<0-512>**
- **show ip ospf lsdb lsid {A.B.C.D}**
- **show ip ospf lsdb lsid {A.B.C.D} vrf WORD<1-16>**
- **show ip ospf lsdb lsid {A.B.C.D} vrfids WORD<0-512>**
- **show ip ospf lsdb vrf WORD<1-16>**
- **show ip ospf lsdb vrfids WORD<0-512>**

Command Parameters

adv-rtr <A.B.C.D>

Specifies the advertising router.

area <A.B.C.D>

Specifies the OSPF area.

detail

Provides detailed output.

lsa-type <1-11>

Specifies the link-state advertisement type in the range of 1 to 11.

lsid <A.B.C.D>

Specifies the link-state ID.

vrf WORD<1-16>

Specifies a VRF by name.

vrfids WORD<0-512>

Specifies a range of VRF IDs.

Default

None

Command Mode

User EXEC

show ip ospf neighbor

Displays OSPF NBMA neighbor information.

Syntax

- **show ip ospf neighbor**
- **show ip ospf neighbor [vrf WORD<1-16>] [vrfids WORD <0-512>]**
- **show ip ospf neighbor vrf WORD<1-16>**
- **show ip ospf neighbor vrfids WORD<0-512>**

Command Parameters

vrf WORD <1-16>

Specifies a VRF by name.

vrfids WORD<0-512>

Specifies a range of VRF IDs.

Default

None

Command Mode

User EXEC

show ip ospf port-error

Check OSPF errors for administrative and troubleshooting purposes.

Syntax

- **show ip ospf port-error [port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}] [vrf WORD<1-16>] [vrfids WORD<0-512>]**

Command Parameters

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all] [all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

vrf WORD<1-16>

Specifies a VRF by name.

vrfids WORD<0-512>

Specifies a range of VRF IDs.

Default

None

Command Mode

User EXEC

show ip ospf redistribute

Displays the OSPF redistribution configuration information.

Syntax

- **show ip ospf redistribute**
- **show ip ospf redistribute [vrf WORD <1-16>] [vrfids WORD<1-512>]**
- **show ip ospf redistribute vrf WORD<1-16>**
- **show ip ospf redistribute vrfids WORD<0-512>**

Command Parameters

vrf WORD <1-16>

Specifies a VRF by name.

vrfids WORD <0-512>

Specifies a range of VRF IDs.

Default

None

Command Mode

User EXEC

show ip ospf stats

Use statistics to help you monitor Open Shortest Path First (OSPF) performance.

Syntax

- **show ip ospf stats**
- **show ip ospf stats [vrf WORD<1-16>] [vrfids WORD<0-512>]**
- **show ip ospf stats vrf WORD<1-16>**
- **show ip ospf stats vrfids WORD<0-512>**

Command Parameters

vrf WORD<1-16>

Specifies a VRF instance by VRF name.

vrfids WORD<0-512>

Specifies a VRF or range of VRFs by ID.

Default

None

Command Mode

User EXEC

Command Output

The **show ip ospf stats** command displays the following information:

Output field	Description
NumBufAlloc	Indicates the number of buffers allocated for OSPF.
NumBufFree	Indicates the number of buffers that are freed by the OSPF.
NumBufAllocFail	Indicates the number of times that OSPF failed to allocate buffers.

Output field	Description
NumBufFreeFail	Indicates the number of times that OSPF failed to free buffers.
NumTxPkt	Indicates the number of packets transmitted by OSPF.
NumRxPkt	Indicates the number of packets received by OSPF.
NumTxDropPkt	Indicates the number of packets dropped before transmission by OSPF.
NumRxDropPkt	Indicates the number of packets dropped before reception by OSPF.
NumRxBadPkt	Indicates the number of packets received by OSPF that are bad.
NumSpfRun	Indicates the total number of SPF calculations performed by OSPF, which also includes the number of partial route table calculation for incremental updates.
LastSpfRun	Indicates the time (SysUpTime) since the last SPF calculated by OSPF.
LsdbTblSize	Indicates the number of entries in the link state database table.
NumAllocBdDDP	Indicates the number of times buffer descriptors were allocated for OSPF database description packets.
NumFreeBdDDP	Indicates the number of times buffer descriptors were freed after use as OSPF database description packets.
NumBadLsReq	Indicates the number of bad LSDB requests.
NumSeqMismatch	Indicates the number of mismatches for sequence numbers.
NumOspfRoutes	The count of OSPF routes.
NumOspfAreas	The count of all OSPF areas.
NumOspfAdjacencies	The count of adjacencies.
NumOspfNbrs	The count of OSPF neighbors.
NumEnabledOspfAreas	The count of OSPF areas with at least one enabled OSPF interface. This number counts against the scaling maximum when you add a new area.

Example

The following example displays the OSPF performance statistics.

```
Switch:1>show ip ospf stats

================================================================================
                        OSPF Statistics - GlobalRouter
================================================================================
       NumBufAlloc: 1138
        NumBufFree: 1138
   NumBufAllocFail: 0
    NumBufFreeFail: 0
          NumTxPkt: 1144
```

```
          NumRxPkt: 2287
       NumTxDropPkt: 0
       NumRxDropPkt: 0
        NumRxBadPkt: 0
          NumSpfRun: 19
         LastSpfRun: 0 day(s), 00:26:15
        LsdbTblSize: 7
      NumAllocBdDDP: 5
       NumFreeBdDDP: 5
        NumBadLsReq: 0
     NumSeqMismatch: 0
      NumOspfRoutes: 7
       NumOspfAreas: 0
NumOspfAdjacencies: 3
        NumOspfNbrs: 3
NumEnabledOspfAreas:0
```

show ip ospf virtual-link

Displays the OSPF virtual link information to ensure accuracy.

Syntax

- **show ip ospf virtual-link {A.B.C.D} {A.B.C.D}**
- **show ip ospf virtual-link {A.B.C.D} {A.B.C.D} [vrf WORD<1-16>] [vrfids WORD<0-512>]**
- **show ip ospf virtual-link {A.B.C.D} {A.B.C.D} vrf WORD<1-16>**
- **show ip ospf virtual-link {A.B.C.D} {A.B.C.D} vrfids WORD<0-512>**

Command Parameters

{A.B.C.D} {A.B.C.D}

Specifies the area ID and the virtual interface ID. The first IP address specifies the area ID and the second specifies the virtual interface ID.

vrf WORD<1-16>

Specifies a VRF by name.

vrfids WORD<0-512>

Specifies a range of VRF IDs.

vrfids WORD<0-512>

Specifies a range of VRF IDs.

Default

None

Command Mode

User EXEC

show ip ospf vrf

Displays the OSPF configuration for a particular VRF.

Syntax

- **show ip ospf vrf WORD<1-16>**
- **show ip ospf vrf WORD<1-16> vrfids WORD<0-512>**

Command Parameters

vrfids WORD<0-512>

Specifices the VRF ID.

WORD<1-16>

Specifies the VRF name.

Default

None

Command Mode

User EXEC

show ip ospf vrfids

Displays the OSPF configuration for VRFs by VRF ID.

Syntax

- **show ip ospf vrfids WORD<0-512>**

Command Parameters

WORD<0-512>

Specifices the VRF ID.

Default

None

Command Mode

User EXEC

show ip pim

Display the global status of PIM on the switch.

Syntax

- **show ip pim**

Default

None

Command Mode

User EXEC

Example

```
Switch:1>show ip pim
================================================================================
                        Pim General Group - GlobalRouter
================================================================================
PimStat               : disabled
Mode                  : sparse
StaticRP              : disabled
FastJoinPrune         : disabled
SptInfiniteThreshold  : enabled
BootstrapPeriod       : 60
CRPAdvTimeout         : 60
DiscDataTimeout       : 60
FwdCacheTimeout       : 210
RegSupprTimeout       : 60
UniRouteChangeTimeout : 5
JoinPruneInt          : 60
```

show ip pim active-rp

Displays information about the active rendezvous point (RP) for all groups or a specific group.

Syntax

- **show ip pim active-rp**
- **show ip pim active-rp group <A.B.C.D>**

Command Parameters

group <A.B.C.D>

Specifies the multicast group address.

Default

None

Command Mode

User EXEC

Command Output

The **show ip pim active-rp** command displays the following information:

Output field	Description
GRPADDR	Shows the IP address of the multicast group.
RP-ADDR	Shows the IP address of the RP router. This address must be one of the local PIM-SM enabled interfaces.
RP-PRIORITY	Shows the priority of the RP.

Example

The following example displays information about the active rendezvous point (RP) for all groups or a specific group. If you do not specify an IP address, you receive information about the active RP for all the running multicast groups on the switch.

```
Switch:1>show ip pim active-rp
================================================================================
                          Pim Grp->RP Active RP Table - GlobalRouter
================================================================================
GRPADDR          RP-ADDR          RP-PRIORITY
--------------------------------------------------------------------------------
239.0.0.1         20.0.0.90         0
239.0.0.2         20.0.0.90         0
239.0.0.3         20.0.0.90         0
239.0.0.4         20.0.0.90         0
239.0.0.5         20.0.0.90         0
239.255.255.250   20.0.0.90         0
```

show ip pim bsr

Displays information about the bootstrap router (BSR) for this PIM-SM domain.

Syntax

- **show ip pim bsr**

Default

None

Command Mode

User EXEC

Command Output

The **show ip pim bsr** command displays the following information:

Output field	Description
Current BSR address	Shows the IP address of the current BSR for the local PIM domain.
Current BSR priority	Shows the priority of the current BSR. The C-BSR with the highest BSR priority and address (referred to as the preferred BSR) is elected as the BSR for the domain.
Current BSR HaskMask	Shows the mask used in the hash function to map a group to one of the C-RPs from the RP set. The hash-mask allows a small number of consecutive groups (for example, 4) to always hash to the same RP.
Current BSR Fragment	Shows a randomly generated number that distinguishes fragments that belong to different bootstrap messages. Fragments that belong to the same bootstrap message carry the same fragment tag.
Pim Boostrap Timer	Shows the bootstrap timer. After the bootstrap timer expires, the BSR sends out bootstrap messages.

Example

The following example displays information about the bootstrap router (BSR) for this PIM-SM domain.

```
Switch:1>show ip pim bsr
================================================================================================
                 Current BootStrap Router Info  - GlobalRouter
================================================================================================

Current BSR address: 0.0.0.0
Current BSR priority: -1
Current BSR HashMask: 255.255.255.252
Current BSR Fragment Tag: 0
Pim Bootstrap Timer : 0
```

show ip pim interface

Displays information about the PIM-SM interface setup on the switch.

Syntax

- **show ip pim interface gigabitethernet [{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]**
- **show ip pim interface vlan <1-4059>**

Command Parameters

gigabitethernet *{slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

vlan [*<1-4059>*]

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

User EXEC

Command Output

The **show ip pim interface** command displays the following information:

Output field	Description
IF	Indicates the slot and port number or VLAN ID of the interface where PIM is enabled.
ADDR	Shows the IP address of the PIM interface.
MASK	Shows the network mask for the IP address of the PIM interface.
MODE	Indicates the configured mode of this interface. The valid modes are SSM and Sparse.
DR	Shows the designated router (DR) for this interface.

Output field	Description
HLINT	Specifies how long to wait (in seconds) before the PIM router sends out the next hello message to neighboring switches. The default hello interval is 30 seconds.
JPINT	Specifies how long to wait (in seconds) before the PIM router sends out the next join or prune message to its upstream neighbors. The default join and prune interval is 60 seconds.
CBSPR	Specifies the preference for this local interface to become a C-BSR. The C-BSR with the highest BSR priority and address the preferred BSR. The default is –1, which indicates that the current interface is not a C-BSR.
OPSTAT	Indicates the status of PIM on this interface: up or down.
INTF TYPE	Indicates whether the PIM interface is active or passive.
VLAN-ID or PORT-NUM	Indicates the slot and port number or VLAN ID of the interface where PIM is enabled.
PIM ENABLE	Indicates the administrative status of PIM.
MODE	Indicates the configured mode of this interface. The valid modes are SSM and Sparse.
HELLOINT	Specifies how long to wait (in seconds) before the PIM router sends out the next hello message to neighboring switches. The default hello interval is 30 seconds.
JPINT	Specifies how long to wait (in seconds) before the PIM router sends out the next join or prune message to its upstream neighbors. The default join and prune interval is 60 seconds.
CBSRPREF	Specifies the preference for this local interface to become a C-BSR. The C-BSR with the highest BSR priority and address the preferred BSR. The default is –1, which indicates that the current interface is not a C-BSR.
INTF TYPE	Indicates whether the PIM interface is active or passive.

Examples

The following example displays information about the PIM-SM interface configuration on the switch.

```
Switch:1>show ip pim interface
================================================================================
                        Pim Interface - GlobalRouter
================================================================================
IF        ADDR            MASK            MODE       DR              HLINT  JPINT  CBSPR          OPSTAT INTF TYPE
Port1/4   10.1.1.1        255.255.255.0   ssm        10.1.1.1        30     60     -1 (disabled)  up     active
Clip1     111.10.10.10    255.255.255.255 ssm        111.10.10.10    30     60     11 (enabled)   up     passive
Vlan300   21.0.0.206      255.255.255.0   ssm        21.0.0.206      30     60     -1 (disabled)  up     active
Vlan400   41.0.0.206      255.255.255.0   ssm        41.0.0.206      30     60     -1 (disabled)  up     active
Vlan500   31.0.0.206      255.255.255.0   ssm        31.0.0.206      30     60     -1 (disabled)  up     active
Vlan700   62.0.0.206      255.255.255.0   ssm        62.0.0.206      30     60     -1 (disabled)  up     active
Vlan701   62.0.1.206      255.255.255.0   ssm        62.0.1.206      30     60     -1 (disabled)  up     active
Vlan702   62.0.2.206      255.255.255.0   ssm        62.0.2.206      30     60     -1 (disabled)  up     active
Vlan703   62.0.3.206      255.255.255.0   ssm        62.0.3.206      30     60     -1 (disabled)  up     active
```

The following example displays information about the PIM-SM configuration for a specific VLAN.

```
Switch:1>show ip pim interface vlan 10
================================================================================
                                  Vlan Ip Pim
================================================================================

VLAN-ID   PIM-ENABLE MODE    HELLOINT  JPINT   CBSRPREF      INTF TYPE
--------------------------------------------------------------------------------
10         enable    sparse  30        60      -1  (disabled) active
```

show ip pim mode

Show the PIM mode (SM or SSM) configuration on the switch.

Syntax

- **show ip pim mode**

Default

None

Command Mode

User EXEC

Command Output

The **show ip pim mode** command displays the following information:

Output field	Description
Mode	Indicates the PIM mode as SM or SSM.

Example

The following example displays the PIM mode (SM or SSM).

```
Switch:1>show ip pim mode
================================================================================================
                          Pim Global Mode - GlobalRouter
================================================================================================
Mode     : sparse
```

show ip pim mroute

Displays PIM multicast route information from the route table.

Syntax

- **show ip pim mroute group {A.B.C.D}**
- **show ip pim mroute source {A.B.C.D}**
- **show ip pim mroute terse**
- **show ip pim mroute terse [group {A.B.C.D}] [source {A.B.C.D}]**
- **show ip pim mroute terse group {A.B.C.D}**
- **show ip pim mroute terse source {A.B.C.D}**

Command Parameters

group {A.B.C.D}

Specifies the multicast group address.

source {A.B.C.D}

Specifies the source IP address.

terse

Excludes the VLAN timers from the command output.

Default

None

Command Mode

User EXEC

Usage Guidelines

In a PIM-SM or PIM-SSM Layer 3 MLT/SMLT multicast environment, when an SMLT link down or SMLT link up event occurs, or when an individual port in an (S)MLT goes down or comes back up, traffic can be re-hashed (switched over) either to another port in the (S)MLT or to any of the IST's MLT ports. This is valid, as the nature of the (S)MLT environment is that traffic can ingress on any one of these ports and be successfully forwarded to receivers. However, the Incoming Port record might not accurately reflect which port the data is arriving on at a given time. This issue does not cause traffic loss. Check traffic statistics on the ports of the (S)MLT/ IST to determine the ingress port.

Command Output

The **show ip pim mroute** command displays the following information:

Output field	Description
Src	Displays the IP address of the source that sends the multicast stream. A nonzero value indicates that a source sends multicast traffic. 0.0.0.0 indicates that this entry is created in response to a receiver that wants to receive this traffic.
Grp	Displays the IP multicast group address.
RP	Displays the IP address of the RP router.
Upstream	Displays the IP address of the next hop that a multicast packet takes when received on the correct port as listed on the incoming interface.
Flags	Displays the flags configured based on the condition of the receivers, the RP, and the senders. Use the legend at the bottom of the output to explain the flag values.
Incoming Port	Lists the port through which a multicast packet can ingress. If the port is a member of a Multi-Link Trunk (MLT), the packets can ingress on any port of the MLT.
Outgoing Ports	Lists all ports through which traffic that enters on incoming ports exit.
Joined Ports	Lists all ports that received PIM join messages.
Pruned Ports	List all ports that received PIM prune messages.
Leaf Ports	Lists multicast receivers that directly connect to the router.
Asserted Ports	Lists all ports that received assert messages. The router uses assert messages to help determine the best path to the source.
Prune Pending Ports	Lists all ports currently in the prune-pending state.
Assert Winner Ifs	Lists interfaces elected the assert winner. The winner continues to forward multicast traffic to the LAN.
Assert Loser Ifs	Lists interfaces not elected as the assert winner. The loser interface is pruned.
Timers	Displays the up time and expiration time for the entry in the routing table.
AssertVifTimer	Displays the time after which the assert winner state refreshes.

Example

The following example displays information from the route table.

```
Switch:1>show ip pim mroute
================================================================================
                              Pim Multicast Route - GlobalRouter
================================================================================
```

```
Src: 10.1.1.3      Grp: 232.2.1.1    RP: 0.0.0.0     Upstream: 70.70.70.4
Flags: SPT CACHE SG
Incoming  Port: Vlan70-MLT-4(1/24),
Outgoing  Ports: Vlan2-1/8,1/40,
Joined    Ports: Vlan2-1/8,
Pruned    Ports:
Leaf      Ports: Vlan2-1/40,
Asserted  Ports:
Prune Pending Ports:
Assert Winner Ifs:
Assert Loser Ifs:
TIMERS:
Entry   JP   RS  Assert
207     9    0       0
VLAN-Id:     2     3     4    70
Join-P:   191     0     0     0
Assert:     0     0     0     0
--------------------------------------------------------------------------------
Src: 10.1.1.4      Grp: 232.2.1.1    RP: 0.0.0.0     Upstream: 70.70.70.4
Flags:
SPT CACHE SG
Incoming  Port: Vlan70-MLT-4(1/24),
Outgoing Ports: Vlan2-1/8,1/40,
Joined   Ports: Vlan2-1/8,
Pruned   Ports:
Leaf     Ports: Vlan2-1/40,
Asserted Ports:
Prune Pending Ports:
Assert Winner Ifs:
Assert Loser Ifs:
TIMERS:
Entry   JP   RS  Assert
230     19    0       0
VLAN-Id:     2     3     4    70
Join-P:   203     0     0     0
Assert:     0     0     0     0
--------------------------------------------------------------------------------
Total Num of Entries Displayed 2/2
```

show ip pim neighbor

Displays information about the neighboring routers configured with PIM-SM.

Syntax

- **show ip pim neighbor**

Default

None

Command Mode

User EXEC

Command Output

The **show ip pim neighbor** command displays the following information:

Output field	Description
INTERFACE	Indicates the interface number.
ADDRESS	Indicates the IP address of the PIM neighbor.
UPTIME	Indicates the elapsed time since this PIM neighbor last became a neighbor of the local router.
EXPIRE	Indicates the time that remains before this PIM neighbor times out.

show ip pim rp-candidate

Displays information about the candidate rendezvous points for the PIM-SM domain.

Syntax

- **show ip pim rp-candidate**

Default

None

Command Mode

User EXEC

Command Output

The **show ip pim rp-candidate** command displays the following information:

Output field	Description
GRPADDR	Displays the IP address of the multicast group. When combined with the group mask, this value identifies the prefix that the local router uses to advertise itself as a C-RP router.
GRPMASK	Displays the address mask of the multicast group. When combined with the group address, this value identifies the prefix that the local router uses to advertise itself as a C-RP router.
RPADDR	Displays the IP address of the C-RP router. This address must be one of the local PIM-SM enabled interfaces.

show ip pim rp-hash

Displays information about the rendezvous points (RPs) for this PIM-SM domain.

Syntax

- **show ip pim rp-hash**

Default

None

Command Mode

User EXEC

Command Output

The **show ip pim rp-hash** command displays the following information:

Output field	Description
GRPADDRESS	Shows the IP address of the multicast group. When combined with the group mask, it identifies the prefix that the local router uses to advertise itself as a C-RP router.
GRPMASK	Shows the address mask of the multicast group. When combined with the group address, it identifies the prefix that the local router uses to advertise itself as a C-RP router.
ADDRESS	Shows the IP address of the C-RP router.
HOLDTIME	Shows the time specified in a C-RP advertisement that the BSR uses to time out the RP. After the BSR receives an advertisement for the RP, it restarts the timer. If no advertisement arrives before the timer expires, the BSR removes that RP from the RP set.
EXPTIME	Shows the time that remains before this C-RP router times out.

show ip pim static-rp

Displays the static rendezvous point (RP) table.

Syntax

- **show ip pim static-rp**

Default

None

Command Mode

User EXEC

Command Output

The **show ip pim static-rp** command displays the following information:

Output field	Description
GRPADDR	Indicates the IP address of the multicast group. When combined with the group mask, it identifies the prefix that the local router uses to advertise itself as a static RP.
GRPMASK	Indicates the address mask of the multicast group. When combined with the group address, it identifies the prefix that the local router uses to advertise itself as a static RP.
RPADDR	Indicates the IP address of the static RP. This address must be one of the local PIM-SM enabled interfaces.
STATUS	Indicates the status of static RP.

Example

The following example displays the static RP table.

```
Switch:1>show ip pim static-rp
================================================================================
                            Pim Static RP Table - GlobalRouter
================================================================================
GRPADDR          GRPMASK          RPADDR           STATUS
--------------------------------------------------------------------------------
239.0.0.0        255.0.0.0        20.0.0.90       valid
```

show ip pim virtual-neighbor

Display the virtual neighbor.

Syntax

- **show ip pim virtual-neighbor**

Default

None

Command Mode

User EXEC

Command Output

The **show ip pim virtual-neighbor** command displays the following information:

Output field	Description
INTERFACE	Indicates the interface.
ADDRESS	Indicates the IP address of the virtual neighbor.

show ip prefix-list

Display the prefix list.

Syntax

- **show ip prefix-list**
- **show ip prefix-list [WORD<1-64>] [prefix <A.B.C.D>] [vrf WORD<1-16>] [vrfids WORD<0-512>]**
- **show ip prefix-list prefix {A.B.C.D}**
- **show ip prefix-list vrf WORD<1-16>**
- **show ip prefix-list vrfids WORD<0-512>**
- **show ip prefix-list WORD<1-64>**

Command Parameters

prefix {A.B.C.D}

Adds a prefix entry to the prefix list. {A.B.C.D} is the IP address.

vrf WORD<1-16>

Shows prefix list for particular VRF ids. The ID of the VRF and is an integer in the range of 0 to 512.

vrfids WORD<0-512>

Renames the specified prefix list. The name length is from 1 to 64 characters.

WORD <1-64>

Renames the specified prefix list. The name length is from 1 to 64 characters.

Default

None

Command Mode

User EXEC

show ip rip

Display RIP configuration information to ensure the configuration is accurate.

Syntax

- **show ip rip**
- **show ip rip [vrf WORD<1-16>] [vrfids WORD<0-512>]**
- **show ip rip vrf WORD<1-16>**
- **show ip rip vrfids WORD<0-512>**

Command Parameters

vrf WORD<1-16>

Specifies a VRF by name.

vrfids WORD<0-512>

Specifies a range of VRF IDs.

Default

None

Command Mode

User EXEC

show ip rip interface

Display Routing Information Protocol (RIP) information for each interface.

Syntax

- **show ip rip interface [{A.B.C.D}] [vlan {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}] [vrf WORD<1-16>] [vrfids WORD<0-512>]**
- **show ip rip interface ports [<1-4059>]**

Command Parameters

{A.B.C.D}

Shows configurations based on an IP address assigned to a VLAN.

ports *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

vrf WORD<1-16>

Specifies the VRF instance by name. When applying a redistribution instance that redistributes from a nonzero VRF to VRF 0 (the global router), do not specify the destination VRF; only specify the source VRF.

vrfids WORD<0-512>

Specifies a range of VRF IDs.

Default

None

Command Mode

User EXEC

show ip rip redistribute

Display the RIP redistribution configuration information.

Syntax

- **show ip rip redistribute**
- **show ip rip redistribute [vrf WORD<1-16>] [vrfids WORD<1-512>]**
- **show ip rip redistribute vrf WORD<1-16>**
- **show ip rip redistribute vrfids WORD<0-512>**

Command Parameters

vrf WORD<1-16>

Specifies the VRF instance by name. When applying a redistribution instance that redistributes from a nonzero VRF to VRF 0 (the global router), do not specify the destination VRF; only specify the source VRF.

vrfids WORD<0-512>

Specifies a range of VRF IDs.

Default

None

Command Mode

User EXEC

show ip rip vrf

Shows RIP information for a particular VRF by ID.

Syntax

- **show ip rip vrf WORD<1-16>**
- **show ip rip vrf WORD<1-16> vrfids WORD<0-512>**

Command Parameters

vrfids WORD<0-512>

Specifices the VRF ID.

WORD<1-16>

Specifies the VRF name.

Default

None

Command Mode

User EXEC

show ip rip vrfids

Shows RIP information for a particular VRF by ID.

Syntax

- **show ip rip vrfids WORD<0-512>**

Command Parameters

WORD<0-512>

Specifices the VRF ID.

Default

None

Command Mode

User EXEC

show ip route

Display the IP route information.

Syntax

- **show ip route [{A.B.C.D}] [-s {A.B.C.D/X}] [-s default] [trusted-segment {vrf WORD<1-16> | vrfids WORD<0-512>}] [unrestricted-segment {vrf WORD<1-16> | vrfids WORD<0-512>}] [untrusted-segment {vrf WORD<1-16> | vrfids WORD<0-512>}] [verbose] [vrf WORD<1-16>] [vrfids WORD<0-512>] [trusted-segment {vrf WORD<1-16> | vrfids WORD<0-512>}]**

Command Parameters

{A.B.C.D}

Specifies the IP address of the route to the network.

-s <A.B.C.D/X>

Indicates the IP address and subnet mask for which to display routes.

-s default

Specifies the default subnet.

trusted-segment

Displays only routes from the trusted segment. If the VRF is not segmented, this parameter displays information for the traditional VRF.

unrestricted-segment

Displays only routes from the unrestricted segment, if the associated VRF is a Segmented VRF.

untrusted-segment

Displays only routes from the untrusted segment, if the associated VRF is a Segmented VRF.

verbose

Displays verbose output, related to each segment of a Segmented VRF.

vrf WORD<1-16>

Specifies a VRF instance by VRF name.

vrfids WORD<0-512>

Specifies a VRF instance by VRF number.

Default

None

Command Mode

User EXEC

Usage Guidelines

The *[trusted-segment | unrestricted-segment | untrusted-segment]* parameters do not apply to 7830 Series or to switch models that support a single active VRF.

show ip route alternative

Display alternative IP route information.

Syntax

- **show ip route alternative protocol {bgp|isis|local|ospf|rip|static|}**
- **show ip route alternative spbm-nh-as-mac**
- **show ip route alternative vrf WORD<1-16>**
- **show ip route alternative vrfids WORD<0-512>**

Command Parameters

protocol {bgp|isis|local|ospf|rip|static|}

Displays the route protocol information.

spbm-nh-as-mac

Displays spbm route next hop as mac.

vrf WORD<1-16>

Specifies a VRF instance by VRF name.

vrfids WORD<0-512>

Specifies a VRF instance by VRF number.

Default

None

Command Mode

User EXEC

show ip route count-summary

Display the IP route count summary.

Syntax

- **show ip route count-summary vrf WORD<1-16>**
- **show ip route count-summary vrfids WORD<0-512>**

Command Parameters

vrf WORD<1-16>

Specifies a VRF instance by VRF name.

vrfids WORD<0-512>

Specifies a VRF instance by VRF number.

Default

None

Command Mode

User EXEC

show ip route preference

Display the IP route preference information.

Syntax

- **show ip route preference**
- **show ip route preference [vrf WORD<1-16>] [vrfids WORD<0-512>]**

Command Parameters

vrf WORD<1-16>

Specifies a VRF instance by VRF name.

vrfids WORD<0-512>

Specifies a VRF instance by VRF number.

Default

None

Command Mode

User EXEC

Command Output

The **show ip route preference** command displays the following information:

Output field	Description
PROTOCOL	Specifies the protocol.
DEFAULT	Specifies the default for the protocol.
CONFIG	Specifies the preference value for the specified protocol.

Example

The following example displays IP route preference information.

```
Switch:1>#show ip route preference
================================================================
              IP Route Preference - GlobalRouter
================================================================
PROTOCOL         DEFAULT    CONFIG
----------------------------------------------------------------
LOCAL            0          0
STATIC           5          5
ISIS-INTERNAL    7          7
OSPF_INTRA       20         20
OSPF_INTER       25         25
EBGP             45         45
RIP              100        100
OSPF_E1          120        120
OSPF_E2          125        125
ISIS-EXTERNAL    130        7
IBGP             175        175
```

show ip route spbm-nh-as-mac

Display the route information for an SPBM IP route.

Syntax

- **show ip route spbm-nh-as-mac**

Default

None

Command Mode

User EXEC

show ip route static

Display the IP static route information.

Syntax

- **show ip route static**
- **show ip route static {A.B.C.D}**
- **show ip route static {A.B.C.D} -s {A.B.C.D} {A.B.C.D}**
- **show ip route static {A.B.C.D} vrf WORD<1-16>**
- **show ip route static {A.B.C.D} vrfids WORD<0-512>**
- **show ip route static -s {A.B.C.D} {A.B.C.D}**
- **show ip route static -s {A.B.C.D} {A.B.C.D} vrf WORD<1-16>**
- **show ip route static -s {A.B.C.D} {A.B.C.D} vrfids WORD<0-512>**
- **show ip route static vrf WORD<1-16>**
- **show ip route static vrfids WORD<0-512>**

Command Parameters

{A.B.C.D}

Specifies the IP address of the route to the network.

-s <A.B.C.D/X>

Indicates the IP address and subnet mask for which to display routes.

-s default

Specifies the default subnet.

static -s {A.B.C.D} {A.B.C.D} vrf WORD<1-16>

Shows static route information.

vrf WORD<1-16>

Specifies a VRF instance by VRF name.

vrfids WORD<0-512>

Specifies a VRF instance by VRF number.

Default

None

Command Mode

User EXEC

show ip routing

Display the ip routing configuration information.

Syntax

- **show ip routing**
- **show ip routing [vrf WORD<1-16>] [vrfids WORD<0-512>]**
- **show ip routing vrf WORD<1-16>**
- **show ip routing vrfids WORD<0-512>**

Command Parameters

vrf WORD<1-16>

Display the ip routing configuration information.

vrfids WORD<0-512>

Specifies a VRF instance by VRF number.

Default

None

Command Mode

User EXEC

show ip rsmlt

Show IP Routed Split MultiLink Trunking (RSMLT) information to view data about all RSMLT interfaces.

Syntax

- **show ip rsmlt**
- **show ip rsmlt [<local|peer>] [vrf WORD<1-16>] [vrfids WORD<0-512>]**

- **show ip rsmlt local**
- **show ip rsmlt peer**
- **show ip rsmlt vrf WORD<1-16>**
- **show ip rsmlt vrfids WORD<0-512>**

Command Parameters

edge-support

Displays RSMLT edge support and peer information.

local

Displays values for the local switch.

peer

Specifies values for the peer switch.

vrf WORD<1-16>

Specifies a VRF instance by VRF name.

vrfids WORD<0-512>

Specifies a VRF instance by VRF number.

Default

None

Command Mode

User EXEC

Command Output

The **show ip rsmlt** command displays the following information:

Output field	Description
VID	Indicates the VLAN ID.
IP	Indicates the IP address of the VLAN.
MAC	Indicates the MAC address assigned.
ADMIN	Indicates the administrative status of RSMLT on the VLAN.
OPER	Indicates the operational status of RSMLT on the VLAN.
HDTMR	Indicates the hold-down timer value in the range of 0 to 3600 seconds.
HUTMR	Indicates the hold-up timer value in the range of 0 to 3600 seconds or 9999. 9999 means infinity.
HDT REMAIN	Indicates the time remaining of the hold-down timer.

Output field	Description
HUT REMAIN	Indicates the time remaining of the hold-up timer.
SMLT ID	Indicates the Split MultiLink Trunk ID.

Example

The following example shows the output of the **show ip rsmlt** command.

```
Switch:1>show ip rsmlt

================================================================================
                       Ip Rsmlt Local Info - GlobalRouter
================================================================================

VID   IP              MAC               ADMIN   OPER  HDTMR  HUTMR
--------------------------------------------------------------------------------
101   101.1.1.32      00:24:7f:9e:da:01  Enable  Up    100    200
102   102.1.1.32      00:24:7f:9e:da:02  Enable  Up    60     180

VID   SMLT ID
--------------------------------------------------------------------------------
101    101
102    102

VID   IPv6            MAC               ADMIN   OPER  HDTMR  HUTMR
--------------------------------------------------------------------------------
101                   00:24:7f:9e:da:01  Enable  Up    100     200
      1010:0:0:0:0:0:0:0/64
      1010:0:0:0:0:0:0:32/64
      fe80:0:0:0:224:7fff:fe9e:da01/128
102                   00:24:7f:9e:da:02  Enable  Up    60     180
      1020:0:0:0:0:0:0:0/64

      1020:0:0:0:0:0:0:32/64
      fe80:0:0:0:224:7fff:fe9e:da02/128

VID   SMLT ID
--------------------------------------------------------------------------------
101    101
102    102


================================================================================
                       Ip Rsmlt Peer Info - GlobalRouter
================================================================================

VID   IP              MAC               ADMIN   OPER  HDTMR  HUTMR
--------------------------------------------------------------------------------
101   101.1.1.33      00:24:7f:9e:ea:01  Enable  Up    100     200
102   102.1.1.33      00:24:7f:9e:ea:00  Enable  Up    60     180

VID   HDT REMAIN  HUT REMAIN  SMLT ID
--------------------------------------------------------------------------------
101   60          180         101
102   60          180         102

VID   IPv6            MAC               ADMIN   OPER  HDTMR  HUTMR

--------------------------------------------------------------------------------
101                   00:24:7f:9e:ea:01  Enable  Up    100     200
```

```
      1010:0:0:0:0:0:0:0/64
      1010:0:0:0:0:0:0:33/64
      fe80:0:0:0:224:7fff:fe9e:ea01/128
102                 00:24:7f:9e:ea:00  Enable  Up    60     180
      1020:0:0:0:0:0:0:0/64
      1020:0:0:0:0:0:0:33/64
      fe80:0:0:0:224:7fff:fe9e:ea00/128

VID   HDT REMAIN  HUT REMAIN  SMLT ID
-------------------------------------------------------------------------------
101   60          180
101
102   60          180
102
```

show ip rsmlt edge-support

Display Routed Split MultiLink Trunking (RSMLT)-edge status information.

Syntax

- **show ip rsmlt edge-support**

Default

None

Command Mode

User EXEC

show ip source binding

Displays the IPv4 addresses that are allowed on all IP Source Guard enabled ports or for a specified port.

Syntax

- **show ip source binding [{A.B.C.D}] [vlan <1-4059>] [vrf WORD<1-16>] [vrfids WORD<0-512>]**
- **show ip source binding interface gigabitEthernet [{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]**

Command Parameters

{A.B.C.D}

Displays the IP Source Guard address bindings for the specified IPv4 address.

interface gigabitEthernet {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Displays the IPv4 addresses that are allowed on the specified IP Source Guard port.

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

vlan <1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

vrf WORD<1-16>

Displays the IP Source Guard address bindings list for a specific vrf.

vrfids WORD<0-512>

Displays the IP Source Guard address bindings list for a specific vrf id.

Default

None

Command Mode

User EXEC

show ip source verify interface gigabitethernet

Displays IP Source Guard configuration on all ports or for a specified port for IPv4 addresses.

Syntax

- **show ip source verify interface gigabitethernet {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

interface gigabitethernet *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Displays IP Source Guard configuration on the specified port(s) for IPv4 addresses.

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

User EXEC

show ip spb-multicast-policy

Shows the IP SPB Multicast Policy status for a particular VRF.

Syntax

- **show ip spb-multicast-policy**
- **show ip spb-multicast-policy vrf WORD<1-16>**

Command Parameters

vrf WORD<1-16>

Specifies the VRF name.

Default

None

Command Mode

User EXEC

Command Output

The **show ip spb-multicast-policy vrf** command displays the following information:

Output field	Description
ENABLE	Specifies the IP configured SPB multicast policy enables on a VRF.
RPOLICY	Specifies the routed policy on a VRF.

Example

The following example displays the SPB routed multicast policy status.

```
Switch:1>show ip spb-multicast-policy vrf vrf1
================================================================
            SPB ROUTED IP MULTICAST POLICY - vrf1
================================================================
ENABLE     RPOLICY
----------------------------------------------------------------
FALSE      rmaptest
FALSE      rmaptest
```

show ip spb–pim–gw

Display the default values used for the SPB-PIM Gateway interface HELLO and JOIN PRUNE intervals unless specifically configured on the individual interface.

Syntax

- **show ip spb–pim–gw**

Default

None

Command Mode

User EXEC

show ip spb-pim-gw foreign-source

Displays the foreign source information.

Syntax

- **show ip spb-pim-gw foreign-source**
- **show ip spb-pim-gw foreign-source controller**
- **show ip spb-pim-gw foreign-source vrf WORD<1-16>**

- **show ip spb-pim-gw foreign-source vrfids WORD<0-512>**
- **show ip spb-pim-gw foreign-source all**
- **show ip spb-pim-gw foreign-source gateway**
- **show ip spb-pim-gw foreign-source group {A.B.C.D}**
- **show ip spb-pim-gw foreign-source msdp**
- **show ip spb-pim-gw foreign-source source {A.B.C.D}**
- **show ip spb-pim-gw foreign-source spb-node-as-mac**
- **show ip spb-pim-gw foreign-source static**

Command Parameters

all

Displays information for all the VRF IDs from the Controller and Gateway foreign source database.

controller

Displays information from the Controller foreign source database. Only displays information on nodes configured as Controller.

gateway

Displays information from the Gateway foreign source database. Only displays information on nodes configured as Gateway.

group {A.B.C.D}

Displays information for the specific multicast group IP address from the Controller foreign source database.

msdp

Displays information from the Controller foreign source database that is learned through MSDP.

source {A.B.C.D}

Displays information for the specific source IP address from the Controller foreign source database.

spb-node-as-mac

Displays the MAC address for the assigned SPB-PIM Gateway.

static

Displays information from the Controller foreign source database that is configured statically.

vrf WORD<1-16>]

Displays information from the Controller foreign source database for a specific VRF name.

vrfids WORD<0-512>

Displays information from the Controller foreign source database for a range of VRF IDs.

Default

None

Command Mode

User EXEC

show ip spb–pim–gw interface

Display the SPB-PIM Gateway VLAN interface information

Syntax

- **show ip spb–pim–gw**
- **show ip spb–pim–gw interface**
- **show ip spb–pim–gw interface gigabitethernet [{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]**
- **show ip spb–pim–gw interface [vlan [<1-4059>]] [vrf WORD<1-16>] [vrfids <0-1512]**

Command Parameters

gigabitethernet *{slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

vrf WORD<1-16>

Specifies the SPB-PIM Gateway interface neighbor information for a specific VRF.

vrfids WORD<0-512>

Specifies the SPB-PIM Gateway interface neighbor information for a range of VRF IDs.

Default

None

Command Mode

User EXEC

show ip spb–pim–gw neighbor

Display the SPB-PIM Gateway interfaces neighbor information.

Syntax

- **show ip spb–pim–gw neighbor**
- **show ip spb–pim–gw neighbor vrf WORD<1–16>**
- **show ip spb–pim–gw neighbor vrfids WORD<0–512>**

Command Parameters

vrf WORD<1-16>

Specifies the SPB-PIM Gateway interface information for a specific VRF.

vrfids WORD<0-512>

Specifies the SPB-PIM Gateway interface information for a range of VRF IDs.

Default

None

Command Mode

User EXEC

show ip spb–pim–gw node

Displays the active Controllers and Gateways in the SPBM domain.

Syntax

- **show ip spb–pim–gw node controller**
- **show ip spb–pim–gw node gateway**
- **show ip spb–pim–gw node spb-node-as-mac**

Command Parameters

controller

Displays only the controller nodes.

gateway

Displays only the gateway nodes.

spb-node-as-mac

Displays the node list with mac address.

Default

None

Command Mode

User EXEC

show ip spb-pim-gw spbmc-source

Displays all the SPB Multicast over Fabric Connect sources distributed to MSDP.

Syntax

- **show ip spb-pim-gw spbmc-source group {A.B.C.D}**
- **show ip spb-pim-gw spbmc-source originator WORD<1-32>**
- **show ip spb-pim-gw spbmc-source source {A.B.C.D}**
- **show ip spb-pim-gw spbmc-source spb-node-as-mac**
- **show ip spb-pim-gw spbmc-source vrf WORD<1-16>**
- **show ip spb-pim-gw spbmc-source WORD<0-512>**

Command Parameters

group {A.B.C.D}

Displays information for a specific multicast group IP address from SPB originated sources database.

originator WORD<1-32>

Displays information for a specific originator host name from SPB originated sources database.

source {A.B.C.D}

Displays information for a specific source IP address from SPB originated sources database.

spb-node-as-mac

Displays the originator of SPB originated sources as a MAC address rather than a nickname.

vrf WORD<1-16>

Displays SPB originated sources for a specific VRF.

vrfids WORD<0-512>

Displays SPB originated sources for a range of VRF IDs.

Default

None

Command Mode

User EXEC

show ip spb-pim-rw mroute

Display the SPB-PIM Gateway multicast routes.

Syntax

- **show ip spb-pim-rw mroute**
- **show ip spb-pim-rw mroute**
- **show ip spb-pim-rw mroute group {A.B.C.D}**
- **show ip spb-pim-rw mroute source {A.B.C.D}**
- **show ip spb-pim-rw mroute vrf WORD<1-16>**
- **show ip spb-pim-rw mroute vrfids WORD<0-512>**

Command Parameters

group {A.B.C.D}

Displays mroute information specific to a group IP address.

source {A.B.C.D}

Displays mroute information specific to a source IP address.

vrf WORD<1-16>

Specifies the SPB-PIM Gateway mroute information for a specific VRF.

vrfids WORD<0-512>

Specifies the SPB-PIM Gateway mroute information for a range of VRF IDs.

Default

None

Command Mode

User EXEC

show ip tcp adjust-mss

Displays the configuration of the TCP maximum segment size (MSS) adjustment functionality on the switch.

Syntax

- **show ip tcp adjust-mss**

Default

None.

Command Mode

User EXEC

Command Output

The **show ip tcp adjust-mss** command displays the following information:

Output field	Description
ENABLE	Displays if the MSS adjustment functionality is enabled on the switch.
STATUS	Displays the activation status of the MSS adjustment functionality. The MSS adjustment functionality only activates when at least one FE tunnel with a maximum transmission unit (MTU) less than or equal to 1500 is configured.
TCP MSS TYPE	Displays if the MSS adjustment value is manually configured or auto-derived.
TCP MSS VALUE	Displays the MSS adjustment value.

Example

The following example displays the TCP MSS adjustment configuration.

```
Switch:1>show ip tcp adjust-mss
================================================================================
                            IP TCP Adjust MSS
================================================================================
ENABLE            STATUS            TCP MSS                   TCP MSS
                                    TYPE                      VALUE
--------------------------------------------------------------------------------
TRUE              ACTIVE            MANUAL-CONFIG             1200
```

show ip tcp connections

Displays the information on the TCP connections.

Syntax

- **show ip tcp connections [vrf WORD<1-16>] [vrfids WORD<0-512>]**
- **show ip tcp connections vrf WORD<1-16>**
- **show ip tcp connections vrfids WORD<0-512>**

Command Parameters

vrf WORD<1-16>

Specifies a VRF instance by VRF name.

vrfids WORD<0-512>

Specifies a VRF instance by VRF number.

Default

None

Command Mode

User EXEC

show ip tcp properties

Displays global properties.

Syntax

- **show ip tcp properties**

Default

None

Command Mode

User EXEC

show ip tcp statistics

View TCP statistics to manage network performance.

Syntax

- **show ip tcp statistics**

Default

None

Command Mode

User EXEC

Command Output

The **show ip tcp statistics** command displays the following information:

Field	Description
ActiveOpens	The count of transitions by TCP connections to the SYN-SENT state from the CLOSED state.
PassiveOpens	The count of transitions by TCP connections to the SYN-RCVD state from the LISTEN state.
AttemptFails	The count of transitions by TCP connections to the CLOSED state from either the SYN-SENT state or the SYN-RCVD state, plus the count of transitions to the LISTEN state from the SYN-RCVD state.
EstabResets	The count of transitions by TCP connections to the CLOSED state from the ESTABLISHED or CLOSE-WAIT state.
CurrEstab	The count of TCP connections for which the current state is either ESTABLISHED or CLOSE-WAIT.
InSegs	The total count of segments received, including those received in error. This count includes segments received on currently established connections.
OutSegs	The total number of segments sent, including those on current connections but excluding those containing only retransmitted octets.
RetransSegs	The total count of TCP segments transmitted containing one or more previously transmitted octets.

Field	Description
InErrs	The count of segments received in error.
OutRsts	The count of TCP segments sent containing the RST flag.

```
Switch:1>show ip tcp statistics
show ip tcp global statistics:
------------------
ActiveOpens:        0
PassiveOpens:       37
AttemptFails:       0
EstabResets:        34
CurrEstab:          1
InSegs:             6726
OutSegs:            7267
RetransSegs:        10
InErrs:             0
OutRsts:            10
```

show ip udp endpoints

Displays ip udp endpoints information.

Syntax

- **show ip udp endpoints**

Default

None

Command Mode

User EXEC

show ip udp statistics

Display UDP statistics information.

Syntax

- **show ip udp statistics**

Default

None

Command Mode

User EXEC

show ip vrf

View VRF configuration by VRF name.

Syntax

- **show ip vrf [detail] [ipv6-max-routes] [max-routes] [mvpn] [WORD <1-16>] [vrfids WORD <0-512>]**

Command Parameters

detail

Displays detailed VRF information, including details related to segments within a Segmented VRF.

ipv6-max-routes

Displays IPv6 max routes for VRFs.

max-routes

Displays max routes for VRFs.

mvpn

Displays Multicast Virtual Private Network (MVPN) information for VRFs.

vrfids WORD<0-512>

Displays configuration information for a VRF ID.

WORD<1-16>

Specifies a VRF instance by VRF name.

Default

None

Command Mode

User EXEC

show ip vrf mvpn

Displays information about all VRFS with MVPN enabled.

Syntax

- **show ip vrf mvpn**

Default

None

Command Mode

User EXEC

show ip vrrp

Display the global Virtual Router Redundancy Protocol (VRRP) configuration.

Syntax

- **show ip vrrp**
- **show ip vrrp vrf WORD <1-16>**
- **show ip vrrp vrfids WORD<0-512>**

Default

None

Command Mode

User EXEC

show ip vrrp address

Displays basic Virtual Router Redundancy Protocol (VRRP) configuration information for all configured VRRP addresses, including primary and secondary.

Syntax

- **show ip vrrp address [addr {A.B.C.D}] [version <2-3>] [vrf WORD<1-16>] [vrfids WORD<0-512>] [vrid <1-255>]**

Command Parameters

addr {A.B.C.D}

Specifies the virtual IP address.

version <2|3>

Specifies the VRRP version.

vrf WORD<1-16>

Specifies the name of the VRF.

vrfids WORD<0-512>

Specifies the ID of the VRF.

vrid <1-255>

Specifies a unique integer value that represents the virtual router ID. The virtual router acts as the default router for one or more assigned addresses.

Default

None

Command Mode

User EXEC

Command Output

The **show ip vrrp address** command displays the following information:

Output field	Description
ADV	Indicates the Advertisement Interval, in seconds, between sending advertisement messages.
BACKUP MASTER	Indicates if the Backup-Master feature is disabled or enabled.
BACKUP MASTER STATE	Indicates if the Backup-Master is up. If the switch is in Master state but Backup-Master is enabled, then the BACKUP MASTER STATE will be down.
CONTROL	Indicates the virtual router function. Configure the value to enabled to transition the state of the router from initialize to backup. Configure the value to disabled to transition the router from master or backup to initialize.
CRITICAL IP	Indicates the IP address of the interface that is critical to VRRP. If that IP interface is down, the VRRP state will transition to Backup, even if it has higher priority.
CRITICAL IP (ENABLED)	Indicates if the critical IP feature is enabled.
FAST ADV	Indicates the Fast Advertisement Interval, in milliseconds, between sending advertisement messages. When the Fast Advertisement Interval is enabled, the Fast Advertisement Interval is used instead of the regular advertisement interval.
FAST ADV (ENABLED)	Indicates the state of fast advertisement.

Output field	Description
HLD DWN	Specifies the time interval (in seconds) the Hold-down timer has until it expires. If the value is 0, it means the Hold-down timer is not running. This timer will delay the transition from Backup to Master only on a system startup (the VRRP comes from INIT to Backup and determines it should become Master). • The VRRP hold-down timer runs when the system transitions from initialization to backup to master. This occurs only on a system startup • The VRRP hold-down timer does not run under the following condition: In a nonstartup condition, the backup system becomes master after the Master Downtime Interval (3 * hello interval), if the master virtual router goes down • The VRRP hold-down timer also applies to the VRRP BackupMaster feature
HOSTNAME	Displays the SPBM host name of the VRRP primary router for a Distributed Virtual Routing (DvR) interface.
IP	Indicates the assigned IP addresses that a virtual router backs up.
MAC	Indicates the virtual MAC address of the virtual router in the format 00-00-5E-00-01-<vrrpid>, where the first three octets consist of the IANA OUI; the next two octets indicate the address block of the VRRP protocol; and the remaining octets consist of the vrrpid.
MASTER	Indicates the master router real (primary) IP address.
ORIGIN	Displays how the VRRP interface was configured, either manually or via DvR.
PRIO	Indicates the priority for the virtual router with respect to other virtual routers that are backing up one or more associated IP addresses. Higher values indicate higher priority. A priority of 255 cannot be configured and it is set for the VRRP router that has the same IP as the physical IP addresses (is Address Owner).
P/V	Indicates the P(ort)/V(lan) on which the VRRP was configured.
STATE	Indicates the current state of the virtual router. initialize—waiting for a startup event backup—monitoring the state or availability of the master router master—forwarding IP addresses associated with this virtual router.
UP TIME	Indicates the time interval since this virtual router exited the INIT state.
VERSION	Indicates the VRRP version.

Output field	Description
VIRTUAL ADDRESS	Shows the configured secondary virtual addresses.
VRRP ID	Indicates the virtual router ID on a VRRP router.

Example

The following example displays information for the VRRP backup address.

```
Switch:1>show ip vrrp address
================================================================================================================
                            VRRP Info - GlobalRouter
================================================================================================================

VRRP ID  P/V      IP              MAC                STATE    CONTROL  PRIO  ADV VERSION  ORIGIN
----------------------------------------------------------------------------------------------------------------
10       2        203.0.113.2     00:00:5e:00:01:0a  Init     Disabled 255   1   2        config
1        222      11.1.1.1        00:00:5e:00:01:01  Init     Disabled 255   1   2        config
1        223      15.1.1.1        00:00:5e:00:01:01  Init     Disabled 255   1   3        config

3 out of 3 Total Num of VRRP Address Entries displayed.


VRRP ID  P/V      MASTER          UP TIME               HLD DWN  CRITICAL IP(ENABLED)  VERSION  HOSTNAME
----------------------------------------------------------------------------------------------------------------
10       2        0.0.0.0         0 day(s), 00:00:00    0        0.0.0.0          (No)  2
1        222      0.0.0.0         0 day(s), 00:00:00    0        0.0.0.0          (No)  2
1        223      0.0.0.0         0 day(s), 00:00:00    0        0.0.0.0          (No)  3

3 out of 3 Total Num of VRRP Address Entries displayed.



VRRP ID  P/V      BACKUP MASTER   BACKUP MASTER STATE   FAST ADV (ENABLED)     VERSION
----------------------------------------------------------------------------------------------------------------
10       2        disable         down                  200       (NO)          2
1        222      disable         down                  200       (NO)          2
1        223      disable         down                  200       (NO)          3

3 out of 3 Total Num of VRRP Address Entries displayed.

VRRP ID  P/V      VIRTUAL ADDRESS
----------------------------------------------------------------------------------------------------------------
1        222      11.1.2.1
1        223      15.1.2.1

2 out of 2 Total Num of VRRP Virtual Address Entries displayed.
```

show ip vrrp interface

Display Virtual Router Redundancy Protocol (VRRP) information about the interface.

Syntax

- **show ip vrrp interface [verbose] [version <2-3>] [vlan <1-4059>] [vrf WORD<1-16>] [vrfids WORD<0-512>] [vrid <1-255>]**

Command Parameters

version <2|3>

Displays the VRRP version configured.

verbose

Shows all available information about the VRRP interfaces.

vlan *<1-4059>*

Shows the VRRP interface gigabitEthernet configurations.

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

vrf WORD<1-16>

Shows all available information about the VRRP interfaces.

vrfids WORD<0-512>

Specifies the ID of the VRF.

Default

None

Command Mode

User EXEC

show ip vrrp interface gigabitEthernet

Display the Virtual Router Redundancy Protocol (VRRP) interface gigabitEthernet configurations.

Syntax

- **show ip vrrp interface gigabitethernet [<1-4059>] [{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}] [verbose]**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)

- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

verbose

Displays all available information about the VRRP interface gigabitEthernet configurations.

Default

None

Command Mode

User EXEC

show ip vrrp interface gigabitEthernet statistics

Display statistics for Virtual Router Redundancy Protocol (VRRP) ports.

Syntax

- **show ip vrrp interface gigabitethernet statistics [{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}] [verbose]**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

verbose

Displays all available information about the VRRP interface gigabitEthernet configurations.

Default

None

Command Mode

User EXEC

show ip vrrp interface vlan

Show the extended Virtual Router Redundancy Protocol (VRRP) configuration for all VLANs on the switch or for the specified VLAN.

Syntax

- **show ip vrrp interface vlan [<1-4059>] [verbose] [vrf WORD<1-16>] [vrfids WORD<0-512>] [{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

verbose

Displays all available information about the VRRP interface VLAN configurations.

vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

vrf WORD<1-16>

Specifies the name of the VRF.

vrfids WORD<0-512>

Specifies the ID of the VRF.

Default

None

Command Mode

User EXEC

Command Output

The **show ip vrrp interface vlan verbose** command displays the following information:

Output field	Description
VLAN ID	Indicates the VLAN ID.
VRRP ID	Indicates the virtual router ID.
VRF NAME	Indicates the associated VRF name, if applicable.
STATE	Indicates the current state of the virtual router. • initialize—waiting for a startup event • backup—monitoring the state or availability of the master router • master—forwarding IP addresses associated with this virtual router
CONTROL	Specifies the virtual router function. Configure the value to enabled to transition the state of the router from initialize to backup. Configure the value to disabled to transition the router from master or backup to initialize.
PRIORITY	Specifies the priority for the virtual router (for example, master election) with respect to other virtual routers that are backing up one or more associated IP addresses. Higher values indicate higher priority. A priority of 0, which you cannot configure, indicates that this router ceased to participate in VRRP and a backup virtual router transitions to become a new master. Use a priority of 255 for the router that owns the associated IP addresses.
MASTER IPADDR	Specifies the master router real (primary) IP address. The master IP address is listed as the source in the VRRP advertisement last received by this virtual router.

Output field	Description
ADVERTISE INTERVAL	Specifies the time interval, in seconds, between sending advertisement messages. Only the master router sends VRRP advertisements.
CRITICAL IPADDR	Specifies the IP address of the interface that causes a shutdown event.
VERSION	Specifies the VRRP version.
HOSTNAME **Note:** Exception: not supported on 4220 Series, 5320 Series, or 5420 Series.	Displays the SPBM host name of the VRRP primary router for a Distributed Virtual Routing (DvR) interface.
ORIGIN **Note:** Exception: not supported on 4220 Series, 5320 Series, or 5420 Series.	Displays how the VRRP interface was configured, either manually or through DvR.
HOLDDOWN_TIME	Specifies the configured time (in seconds) that the system waits before it preempts the current VRRP master.
ACTION	Specifies the trigger for an action on this VRRP interface. Options include none and preemptHoldDownTimer.
CRITICAL IP ENABLE	Specifies that a user-defined critical IP address is enabled. No indicates the use of the default IP address (0.0.0.0).
BACKUP MASTER	Specifies the state of designating a backup master router.
BACKUP MASTER STATE	Specifies the state of the backup master router.
FAST ADV INTERVAL	Specifies the time interval, in milliseconds, between sending Fast Advertisement messages. When the Fast Advertisement Interval is enabled, the Fast Advertisement Interval is used instead of the regular advertisement interval.
FAST ADV ENABLE	Specifies the Fast Advertisement Interval status.
MASTER ADV INTERVAL (ms)	On the VRRPv3 master, the master advertisement interval is same as the advertisement interval. On the VRRPv3 Backup, the master advertisement interval is set to the Advertisement configured on the Master (received in the packet).
PREEMPT MODE	Specifies if the router operates in preempt mode. If a new router is added to the network with its priority higher than the existing routers, then the new router becomes the master.
PSEUDO-HEADER CHECKSUM	Specifies the type of checksum computation, with Pseudo Header or without Pseudo Header.

show ip vrrp statistics

Display Virtual Router Redundancy Protocol (VRRP) statistics.

Syntax

- **show ip vrrp statistics**
- **show ip vrrp statistics [address {A.B.C.D}] [vrf WORD<1-16>] [vrfids WORD<0-512>] [vrid<1-255>] [version <2-3>]**
- **show ip vrrp statistics [version <2-3>]**
- **show ip vrrp statistics address {A.B.C.D}**
- **show ip vrrp statistics vrf WORD<1-16>**
- **show ip vrrp statistics vrfids WORD<0-512>**
- **show ip vrrp statistics vrid <1-255>**

Command Parameters

[version <2|3>

Displays the VRRP version configured.

address {A.B.C.D}

Specifies the address of the backup VRRP.

vrf WORD<1-16>

Specifies the VRF name.

vrfids WORD<0-512>

Specifies the ID of the VRF and is an integer in the range of 0 to 512.

vrid WORD<1-255>

Specifies a unique integar value that represents the virtual router ID in the range of 1 to 255. The virtual router acts as the default router for one or more assigned addresses.

Default

None

Command Mode

User EXEC

show ipsec interface (for a port)

Display the Internet Protocol Security (IPsec) information on an Ethernet interface. The command only works on an interface where you enable IPv6. If you do not enable IPv6 on the interface, the command displays as an error to the user.

Syntax

- **show ipsec interface gigabitethernet {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

gigabitethernet *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

User EXEC

Command Output

The **show ipsec interface gigabitethernet** command displays the following information:

Output field	Description
Interface	Specifies the interface.
Policy Name	Specifies the IPsec policy that associates with the specific port or ports.
IPsec State	Specifies whether the IPsec policy is enabled on the interface.
Direction	Specifies the policy direction.

show ipsec interface (for a VLAN)

Display the Internet Protocol Security (IPsec) information on an VLAN interface. The command only works on an interface where you enable IPv6. If you do not enable IPv6 on the interface, the command displays as an error to the user.

Syntax

- **show ipsec interface**
- **show ipsec interface vlan <1-4094>**

Command Parameters

vlan <1-4094>

Specifies the VLAN ID.

Default

None

Command Mode

User EXEC

Command Output

The **show ipsec interface vlan** command displays the following information:

Output field	Description
Vlan Interface	Specifies the VLAN interface.
Policy Name	Specifies the IPsec policy that associates with the specific VLAN or VLANs.
IPsec State	Specifies whether the IPsec policy is enabled on the VLAN interface.
Direction	Specifies the policy direction.

show ipsec interface loopback

Displays the IPsec status on a loopback interface.

Syntax

- **show ipsec interface loopback <1-256>**

Default

None

Command Mode

User EXEC

Command Output

The **show ipsec interface loopback** command displays the following information:

Output field	Description
LoopBack Interface	Specifies the loopback interface.
Policy Name	Specifies the IPsec policy that associates with the interface.
IPsec State	Specifies whether the IPsec policy is enabled on the interface.
Direction	Specifies the policy direction.

show ipsec policy

Display Internet Protcol Security (IPsec) policy information.

Syntax

- **show ipsec policy all**
- **show ipsec policy interface WORD<1-32>**
- **show ipsec policy name WORD<1-32>**

Command Parameters

all

Displays all of the IPsec policies on the switch.

interface WORD<1-32>

Displays a specific IPsec policy based on the policy name on the interface.

name WORD<1-32>

Displays the IPsec policy based on the name of the policy.

Default

None

Command Mode

User EXEC

Command Output

The **show ipsec policy all** and **show ipsec policy name** commands display the following information:

Output field	Description
PolicyName	Specifies the IPsec policy name.
LocalAddress	Specifies the local address. The default is 0::0.
RemoteAddress	Specifies the remote address. The default is 0::0.
Protocol	Specifies the protocol.
src-port	Specifies the source port.
dest-port	Specifies the destination port.
Action	Specifies the action as either: permit or drop.
Admin	Specifies whether the policy is enabled.

The **show ipsec policy interface** command displays the following information:

Output field	Description
POLICY NAME	Specifies the IPsec policy name.
InterfaceIndex	Specifies the interface.
Policy State	Specifies whether the policy is enabled.

show ipsec sa

Display Internet Protocol Security (IPsec) security association information.

Syntax

- **show ipsec sa all**
- **show ipsec sa name WORD<1-32>**

Command Parameters

all

Displays all of the IPsec security association information.

name WORD<1-32>

Displays information about a specific IPsec security association.

Default

None

Command Mode

User EXEC

Command Output

The **show ipsec sa** command displays the following information:

Output field	Description
sa-name	Specifies all of the IPsec security association names.
key-Mode	Specifies the key mode as manual or automatic. The default is automatic.
Encap protocol	Specifies the encapsulation protocol.
SPI Value	Specifies the SPI value, which is a tag added to the IP header. For IPsec to function, each peer must have the same SPI value configured on both peers for a particular policy.
Encrypt Algorithm	Specifies the encrypt algorithm as one of the following: • 3DES-CBC • AES-CBC • AES-CTR • NULL—Only used to debug.
Encrypt-key	Specifies the encrypt-key parameter for the authentication key in either: • hex– Specifies hexadecimal. • ascii–Specifies ASCII, the American Standard Code for Information Interchange character encoding scheme.
Encrypt-key-Len	Specifies the key length value in a string from 1 to 256 characters. The default KeyLength is 128.
Mode	Specifies the mode value as one of the following: • tunnel—Tunnel mode encapsulates the entire IP packet and provides a secure tunnel. • transport—Transport mode encapsulates the IP payload and provides a secure connection between two endpoints. The default is transport mode.
Lifetime-Sec	Specifies the lifetime value in seconds. The default is 28800.
Lifetime-Byte	Specifies the lifetime value in bytes. The default is 4294966272.

show ipsec sa-policy

Display Internet Protocol Security (IPsec) security associations linked to a particular IPsec policy.

Syntax

- **show ipsec sa-policy**

Default

None

Command Mode

User EXEC

Command Output

The **show ipsec sa-policy** command displays the following information:

Output field	Description
Policy Name	Specifies the IPsec policy name.
Security Association	Specifies the security association name.

show ipsec statistics gigabitethernet

Display statistics for Internet Protocol Security (IPsec) for an Ethernet interface.

Syntax

- **show ipsec statistics gigabitethernet {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

gigabitethernet *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

User EXEC

Command Output

The **show ipsec statistics gigabitethernet** command displays the following information:

Output field	Description
Ifindex	Specifies the interface.
InSuccesses	Specifies the number of ingress packets IPsec successfully carries.
InSPViolations	Specifies the number of ingress packets IPsec discards since boot time because of a security policy violation.
InNotEnoughMemories	Specifies the number of ingress packets IPsec discards since boot time because not enough memory is available.
InAHESPReplays	Specifies the number of ingress packets IPsec discards since boot time because the encapsulating security payload (ESP) replay check fails.
InAHFailures	Specifies the number of ingress packets IPsec discards since boot time because the AH authentication check fails.
InESPFailures	Specifies the number of ingress packets IPsec discards since boot time because the ESP authentication check fails.
OutSuccesses	Specifies the number of egress packets IPsec successfully carries since boot time.
OutSPViolations	Specifies the number of egress packets IPsec discards since boot time because a security policy violation occurs.
OutNotEnoughMemories	Specifies the number of egress packets IPsec discards since boot time because not enough memory is available since boot time.
generalError	Specifies a general error.

show ipsec statistics system

Display statistics for Internet Protocol Security (IPsec) for the system.

Syntax

- **show ipsec statistics system**

Default

None

Command Mode

User EXEC

Command Output

The **show ipsec statistics system** command displays the following information:

Output field	Description
InSuccesses	Specifies the number of ingress packets IPsec successfully carries.
InSPViolations	Specifies the number of ingress packets IPsec discards since boot time because of a security policy violation.
InNotEnoughMemories	Specifies the number of ingress packets IPsec discards since boot time because not enough memory is available.
InAHESPReplays	Specifies the number of ingress packets IPsec discards since boot time because the encapsulating security payload (ESP) replay check fails.
InAHFailures	Specifies the number of ingress packets IPsec discards since boot time because the AH authentication check fails.
InESPFailures	Specifies the number of ingress packets IPsec discards since boot time because the ESP authentication check fails.
OutSuccesses	Specifies the number of egress packets IPsec successfully carries since boot time.
OutSPViolations	Specifies the number of egress packets IPsec discards since boot time because a security policy violation occurs.
OutNotEnoughMemories	Specifies the number of egress packets IPsec discards since boot time because not enough memory is available since boot time.
generalError	Specifies a general error.
InAHSuccesses	Specifies the number of ingress packets IPsec carries because the AH authentication succeeds.
InESPSuccesses	Specifies the number of ingress packets IPsec carries since boot time because the ESP authentication succeeds.
OutAHSuccesses	Specifies the number of egress packets IPsec successfully carries since boot time.
OutESPSuccesses	Specifies the number of egress packets IPsec successfully carries since boot time.
OutKBytes	Specifies the total number of kilobytes on egress.
OutBytes	Specifies the total number of bytes on egress.
InKBytes	Specifies the total number of bytes on ingress.
InBytes	Specifies the total number of bytes on ingress.
TotalPacketsProcessed	Specifies the total number of packets processed.
TotalPacketsByPassed	Specifies the total number of packets bypassed.
OutAHFailures	Specifies the number of egress packets IPsec discards since boot time because the AH authentication check fails.
OutESPFailures	Specifies the number of egress packets IPsec discards since boot time because the ESP authentication check fails.

Output field	Description
InMD5Hmacs	Specifies the number of inbound HMAC MD5 occurrences since boot time.
InSHA1Hmacs	Specifies the number of inbound HMAC SHA1 occurrences since boot time.
InAESXCBCs	Specifies the number of inbound AES XCBC MAC occurrences since boot time.
InAnyNullAuth	Specifies the number of inbound null authentication occurrences since boot time.
In3DESCBCs	Specifies the number of inbound 3DES CBC occurrences since boot time.
InAESCBCs	Specifies the number of inbound AES CBC occurrences since boot time.
InAESCTRs	Specifies the number of inbound AES CTR occurrences since boot time.
InAnyNullEncrypt	Specifies the number of inbound null occurrences since boot time. Used for debugging purposes.
OutMD5Hmacs	Specifies the number of outbound HMAC MD5 occurrences since boot time.
OutSHA1Hmacs	Specifies the number of outbound HMAC SHA1 occurrences since boot time.
OutAESXCBCs	Specifies the number of outbound AES XCBC MAC occurrences since boot time.
OutInAnyNullAuth	Specifies the number of outbound null authentication occurrences since boot time.
Out3DESCBCs	Specifies the number of outbound 3DES CBC occurrences since boot time.
OutAESCBCs	Specifies the number of outbound AES CBC occurrences since boot time.
OutAESCTRs	Specifies the number of outbound AES CTR occurrences since boot time.
OutInAnyNullEncrypt	Specifies the number of outbound null occurrences since boot time. Used for debugging purposes.

show ipsec statistics vlan

Display statistics for Internet Protocol Security (IPsec) for an VLAN interface.

Syntax

- **show ipsec statistics vlan <1-4059>**

Command Parameters

vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

User EXEC

Command Output

The **show ipsec statistics vlan** command displays the following information:

Output field	Description
Ifindex	Specifies the interface.
InSuccesses	Specifies the number of ingress packets IPsec successfully carries.
InSPViolations	Specifies the number of ingress packets IPsec discards since boot time because of a security policy violation.
InNotEnoughMemories	Specifies the number of ingress packets IPsec discards since boot time because not enough memory is available.
InAHESPReplays	Specifies the number of ingress packets IPsec discards since boot time because the encapsulating security payload (ESP) replay check fails.
InAHFailures	Specifies the number of ingress packets IPsec discards since boot time because the AH authentication check fails.
InESPFailures	Specifies the number of ingress packets IPsec discards since boot time because the ESP authentication check fails.
OutSuccesses	Specifies the number of egress packets IPsec successfully carries since boot time.
OutSPViolations	Specifies the number of egress packets IPsec discards since boot time because a security policy violation occurs.
OutNotEnoughMemories	Specifies the number of egress packets IPsec discards since boot time because not enough memory is available since boot time.
generalError	Specifies a general error.

show ipv6 address

View IPv6 address entries.

Syntax

- **show ipv6 address interface gigabitethernet [{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]**
- **show ipv6 address interface ip WORD<0-46> [vrf WORD<1-16>] [vrfids WORD<0-512>]**
- **show ipv6 address interface [tunnel <1-2000>] [vlan <1-4059>] [vrf WORD<1-16>] [vrfids WORD<0-512>]**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

tunnel <1-2000>

Displays the address entries specific to a tunnel ID.

vrf WORD<1-16>

Specifies a VRF name. The VRF parameter is optional.

vrfids WORD<0-512>

Specifies a VRF by ID. The VRF parameter is optional.

WORD<0-46>

Specifies an IPv6 address.

Default

None

Command Mode

User EXEC

show ipv6 bfd

Display global Bidirectional Forwarding Detection (BFD) configuration information for IPv6 interfaces.

Syntax

- **show ipv6 bfd**
- **show ipv6 bfd vrf**
- **show ipv6 bfd vrfids**

Command Parameters

vrf

Specifies a VRF instance by VRF name.

vrfids

Specifies a VRF or range of VRFs by ID.

Command Mode

User EXEC

Usage Guidelines

This command is available for demonstration purposes only. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

Command Output

The **show ipv6 bfd** command displays the following information:

Output field	Description
BFD Version	Specifies the current BFD version.
Admin Status	Specifies whether BFD is enabled globally.
Trap Enable	Specifies whether traps are enabled.
Total session number	Specifies the total number of BFD sessions.
UP	Specifies whether a BFD session is in UP state.
DOWN	Specifies whether a BFD session is in DOWN state.

Output field	Description
AdminDown	Specifies whether a BFD session is in AdminDown state.
Init	Specifies whether a BFD session is in Init state.

Example

The following example displays global configuration information for BFD on an IPv6 interface.

```
Switch:1>show ipv6 bfd
================================================================================
                         BFD information - GlobalRouter
================================================================================
                       BFD Version :  1
                      Admin Status :  TRUE
                       Trap Enable :  FALSE
--------------------------------------------------------------------------------
   Total session number :  1

    UP: 0, DOWN: 1, AdminDown: 0, Init: 0
--------------------------------------------------------------------------------
```

show ipv6 bfd interfaces

Display Bidirectional Forwarding Detection (BFD) configuration for a port or VLAN on an IPv6 interface.

Syntax

- **show ipv6 bfd interfaces gigabitethernet {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **show ipv6 bfd interfaces vlan <1-4059>**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Command Mode

User EXEC

Usage Guidelines

This command is available for demonstration purposes only. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

Command Output

The **show ipv6 bfd interfaces** command displays the following information:

Output field	Description
VLAN	Specifies the VLAN ID. The system displays this field only in output for VLAN interfaces.
PORT	Specifies the port number. The system displays this field only in output for GigabitEthernet interfaces.
STATUS	Specifies whether BFD is enabled on the interface.
MIN_RX	Specifies the receive interval in milliseconds.
INTERVAL	Specifies the transmit interval in milliseconds.
MULTIPLIER	Specifies the multiplier used to calculate the amount of time BFD waits before declaring a receive timeout.

Example

The following example displays port configuration information for BFD.

```
Switch:1>show ipv6 bfd interfaces gigabitethernet 1/3

================================================================================================
                                    Port Bfd
================================================================================================
PORT       STATUS     MIN_RX     INTERVAL   MULTIPLIER      VRF-ID
------------------------------------------------------------------------------------------------
1/3        enable     200        200            3           0
```

show ipv6 bfd neighbors

Display Bidirectional Forwarding Detection (BFD) session information for IPv6 neighbors.

Syntax

- **show ipv6 bfd neighbors**
- **show ipv6 bfd neighbors next-hop WORD<0-128>**
- **show ipv6 bfd neighbors vrf**
- **show ipv6 bfd neighbors vrfids**

Command Parameters

next-hop WORD<0-128>

Specifies the next-hop IPv6 address in the format a:b:c:d:e:f:g:h.

vrf

Specifies a VRF instance by VRF name.

vrfids

Specifies a VRF or range of VRFs by ID.

Command Mode

User EXEC

Usage Guidelines

This command is available for demonstration purposes only. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

Command Output

The **show ipv6 bfd neighbors** command displays the following information:

Output Field	Description
MY_DISC	Specifies the local discriminator for the BFD session.
YOUR_DISC	Specifies the remote discriminator for the BFD session.
NEXT_HOP	Specifies the next-hop IPv6 address.
STATE	Specifies the BFD session state. Possible values are Down, Up, Init, and AdminDown.
MULTI	Specifies the multiplier used to calculate the amount of time BFD waits before declaring a receive timeout.
MIN_TX	Specifies, in microseconds, the minimum interval that the local system prefers to use when transmitting BFD control packets.
MIN_RX	Specifies, in microseconds, the minimum interval between received BFD control packets.

Output Field	Description
ACT_TX	Specifies, in microseconds, the actual transmission interval.
DETECT_TIME	Specifies the period of time without receiving BFD packets, after which the session is determined to have failed.
REMOTE_STATE	Specifies the BFD session state of the remote system.
APP	Specifies the application configured on the BFD session.
RUN	Specifies the application running on the BFD session.

Example

The following example displays BFD session information for an IPv6 neighbor.

```
Switch:1>show ipv6 bfd neighbors
================================================================================================================================================
                                        BFD Session - GlobalRouter
================================================================================================================================================

MY_DISC    YOUR_DISC  NEXT_HOP                            STATE      MULTI MIN_TX MIN_RX ACT_TX DETECT_TIME REMOTE_STATE APP    RUN
1          0          2001:DB8:0:0:25AB:0:0:1             Down       3     200    200    1000   0           Down         O
------------------------------------------------------------------------------------------------------------------------------------------------
  1 out of 1 BFD session displayed
------------------------------------------------------------------------------------------------------------------------------------------------
APP and RUN Legend:
        B=BGP_IPv6, O=OSPFv3, S=IPv6 Static Route
------------------------------------------------------------------------------------------------------------------------------------------------
```

show ipv6 bfd stats

Display Bidirectional Forwarding Detection (BFD) statistics for IPv6 interfaces.

Syntax

- **show ipv6 bfd stats**
- **show ipv6 bfd stats vrf WORD<1-16>**
- **show ipv6 bfd stats vrfids WORD<0-512>**

Command Parameters

vrf

Specifies a VRF instance by VRF name.

vrfids

Specifies a VRF or range of VRFs by ID.

Command Mode

User EXEC

Usage Guidelines

This command is available for demonstration purposes only. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

Command Output

The **show ipv6 bfd stats** command displays the following information:

Output field	Description
MY_DISC	Specifies the local discriminator for the BFD session.
YOUR_DISC	Specifies the remote discriminator for the BFD session.
NEXT_HOP	Specifies the next-hop IPv4 address.
PACKT_IN	Specifies the total number of BFD messages received for this BFD session.
PACKET_OUT	Specifies the total number of BFD messages sent for this BFD session.
LAST_UP	The value of sysUpTime on the most recent occasion at which the session came up. If no such up event exists this object contains a zero value.
LAST_DOWN	The value of sysUpTime on the most recent occasion at which the last time communication was lost with the neighbor. If no such down event exist this object contains a zero value.

Example

The following example displays BFD statistics for IPv6 interfaces.

```
Switch:1>show ipv6 bfd stats
================================================================================================================
                             BFD staticstics - GlobalRouter
================================================================================================================

MY_DISC YOUR_DISC NEXT_HOP                PACKT_IN     PACKET_OUT   LAST_UP                    LAST_DOWN
----------------------------------------------------------------------------------------------------------------

1       0        2001:DB8:0:0:0:0:0:ffff  4661750      4620630      Mon Sep  6 15:31:15 2021   Mon Sep  6 15:28:08 2021
----------------------------------------------------------------------------------------------------------------
```

show ipv6 dcache

Display the destination cache to see next-hop addresses for destinations. The destination cache is only populated or updated when IPv6 packets originate locally on the central processor of the switch.

Syntax

- **show ipv6 dcache gigabitethernet {slot/port[sub-port]}**
- **show ipv6 dcache tunnel <1-2000>**

- **show ipv6 dcache vlan <1-4059>**
- **show ipv6 dcache vrf WORD<1-16>**
- **show ipv6 dcache vrfids WORD<0-512>**

Command Parameters

gigabitethernet {slot/port[sub-port]}

Identifies a single slot and port. If your platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

tunnel <1-2000>

Specifies the tunnel ID.

vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

vrf WORD<1-16>

Specifies a VRF name. The VRF parameter is optional.

vrfids WORD<0-512>

Specifies a VRF by ID. The VRF parameter is optional.

Default

None

Command Mode

User EXEC

show ipv6 default-routers

Display default routers learned from router advertisement messages.

Syntax

- **show ipv6 default-routers**

Default

None

Command Mode

User EXEC

Command Output

The **show ipv6 default-routers** command displays the following information:

Parameter	Description
NET ADDRESS	Shows the IPv6 router address received from a valid router advertisement.
VLAN	Shows the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. If you enable VRF scaling and SPBM mode, the system also reserves VLAN IDs 3500 to 3999. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.
LIFETIME	Shows the value placed in the router lifetime field of router advertisements. This value must be either 0 or between 4 and 9000. A value of zero indicates that the system is not a default router. The default is 1800.
IS ACTIVE	Shows if the default router is active or inactive.

show ipv6 dhcp-relay

Display information about the IPv6 Dynamic Host Configuration Protocol (DHCP) relay counters.

Syntax

- **show ipv6 dhcp-relay counters**
- **show ipv6 dhcp-relay counters [vrf WORD<1-16>]**
- **show ipv6 dhcp-relay counters [vrf WORD<1-16>] [vrfids WORD<0-512>]**
- **show ipv6 dhcp-relay counters [vrfids WORD<0-512>]**

Command Parameters

vrf WORD<1-16>

Specifies a VRF name.

vrfids WORD<0-512>

Specifies a VRF by ID.

Default

None

Command Mode

User EXEC

Command Output

The **show ipv6 dhcp-relay counters** command displays the following information:

Output field	Description
INTERACE	Shows the VLAN or port associated with the respective relay interface.
REQUESTS	Shows the number of DHCP requests on this interface.
REPLIES	Shows the number of DHCP replies on this interface.

```
Switch:1>show ipv6 dhcp-relay counters

================================================================================
                               DHCPv6 Counters
================================================================================
INTERFACE                                REQUESTS   REPLIES
--------------------------------------------------------------------------------
1111:0:0:0:0:0:0:1111                    1          1
```

show ipv6 dhcp-relay fwd-path

Display information about the IPv6 Dynamic Host Configuration Protocol (DHCP) relay forward paths.

Syntax

- **show ipv6 dhcp-relay fwd-path**
- **show ipv6 dhcp-relay fwd-path [vrf WORD<1-16>]**
- **show ipv6 dhcp-relay fwd-path [vrf WORD<1-16>] [vrfids WORD<0-512>]**
- **show ipv6 dhcp-relay fwd-path [vrfids WORD<0-512>]**

Command Parameters

vrf WORD<1-16>

Specifies the name of the VRF.

vrfids <0-512>

Specifies the ID of the VRF. The value is an integer in the range of 0 to 512.

Default

None

Command Mode

User EXEC

Command Output

The **show ipv6 dhcp-relay fwd-path** command displays the following information:

Output field	Description
INTERFACE	Shows the VLAN or port associated with the respective relay interface.
SERVER	Specifies the server address.
ENABLE	Specifies if the IPv6 DHCP-relay forwarding path from the client to the server is enabled on the switch.

```
Switch:1>show ipv6 dhcp-relay fwd-path

================================================================================
                        DHCPv6 Fwd-path - GlobalRouter
================================================================================
INTERFACE                           SERVER                              ENABLE
--------------------------------------------------------------------------------
1111:0:0:0:0:0:0:1111               1234:0:0:0:0:0:0:1234               enable
```

show ipv6 dhcp-relay interface

Display information about the IPv6 Dynamic Host Configuration Protocol (DHCP) relay configuration for specific interface(s).

Syntax

- **show ipv6 dhcp-relay interface**
- **show ipv6 dhcp-relay interface [gigabitethernet]**
- **show ipv6 dhcp-relay interface [gigabitethernet] {slot/port[/sub-port] [-slot/port[/sub-port]][,...][slot/all][all]}**
- **show ipv6 dhcp-relay interface [vlan]**
- **show ipv6 dhcp-relay interface [vlan] [<1-4059>]**
- **show ipv6 dhcp-relay interface [vrf WORD<1-16>]**
- **show ipv6 dhcp-relay interface [vrf WORD<1-16>] [vrfids WORD<0-512>]**
- **show ipv6 dhcp-relay interface [vrfids WORD<0-512>]**

Command Parameters

gigabitethernet *{slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

vrf WORD<1-16>

Specifies the name of the VRF.

vrfids <0-512>

Specifies the ID of the VRF. The value is an integer in the range of 0 to 512.

Default

None

Command Mode

User EXEC

Command Output

The **show ipv6 dhcp-relay interface** command displays the following information:

Output field	Description
IF INDEX	Interface If index for which the statistics is captured for this interface.
Descr	Specifies a textual string containing information about the interface. The network management system also configures the Descr string. Type Specifies the type.
MAX HOP	Configures the maximum number of hops before a IPv6 DHCP packet is discarded (1 to 16). The default is 4. To configure this option to the default value, use the default operator with this command.

Output field	Description
DHCP-RELAY	Specifies the DHCP Relay for Ipv6 configuration table.
REMOTE-ID	Shows the remote ID associated with the respective interface.

show ipv6 fhs dhcp-guard policy

Displays DHCP-guard policy information for all the configured DHCP-guard policy.

Syntax

- **show ipv6 fhs dhcp-guard policy**
- **show ipv6 fhs dhcp-guard policy WORD<1-64>**

Command Parameters

WORD<1-64>

Specifies the policy name.

Default

None

Command Mode

User EXEC

Command Output

The **show ipv6 fhs dhcp-guard policy** command displays the following information:

Output field	Description
POLICY-NAME	Indicates the DHCPv6 Guard policy name.
SERVER-ACC-LIST	Indicates if the received DHCPv6 server packet source IPv6 addresss matches the configured IPv6 access list.
REPLY-PREF-LIST	Indicates if the advertised prefix in received DHCPv6 server packet matches the configured IPv6 access list.
MIN-RTR-PREF	Indicates the advertised router preference minimum limit.
MAX-RTR-PREF	Indicates the advertised router preference maximum limit.

show ipv6 fhs ipv6-access-list

Displays all the configured IPv6 access list in the system.

Syntax

- **show ipv6 fhs ipv6-access-list**
- **show ipv6 fhs ipv6-access-list WORD<1-64>**

Command Parameters

WORD<1–64>

Specifies the access list name.

Default

None

Command Mode

User EXEC

Command Output

The **show ipv6 fhs ipv6-access-list** command displays the following information:

Output field	Description
Access list name	Indicates the IPv6 access list name.
ipv6_prefix	Indicates the IPv6 prefix added to the IPv6 access list.
mask_len	Indicates prefix mask length added to the IPv6 access list.
mask_range_from	Indicates the IPv6 range start mask length.
mask_range_to	Indicates the IPv6 range end mask length.
mode	Indicates the access mode.

show ipv6 fhs mac-access-list

Displays all the configured MAC access list in the system.

Syntax

- **show ipv6 fhs mac-access-list**
- **show ipv6 fhs mac-access-list WORD<1-64>**

Command Parameters

WORD<1-64>

Specifies the MAC access list name.

Default

None

Command Mode

User EXEC

Command Output

The **show ipv6 fhs mac-access-list** command displays the following information:

Output field	Description
ACC-LIST-NAME	Indicates the MAC access list name.
MAC-ADDRESS	Indicates the MAC address.
ACL-MODE	Indicates the ACL mode.

show ipv6 fhs port-policy

Displays the RA-guard policy name configured and RA-guard statistics.

Syntax

- **show ipv6 fhs port-policy [{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

User EXEC

Command Output

The **show ipv6 fhs port-policy** command displays the following information:

Output field	Description
PORT	Indicates the port number.
DHCPV6G-POLICY	Indicates the DHCPv6 policy name.
RA-POLICY	Indicates the RA Guard policy name.

show ipv6 fhs ra-guard policy

Displays configured RA-guard policy information.

Syntax

- **show ipv6 fhs ra-guard policy**
- **show ipv6 fhs ra-guard policy WORD<1-64>**

Command Parameters

WORD<1-64>

Specifies the policy name.

Default

None

Command Mode

User EXEC

Command Output

The **show ipv6 fhs ra-guard policy** command displays the following information:

Output field	Description
POL-NAME	Indicates the RA Guard policy name.
DEVICE-ROLE	Indicates if the device role is router or host.
IPv6–ACC-LIST	Indicates the IPv6 access list against which the incoming RA packet's source IPv6 address has to be validated.

Output field	Description
MAC-ACC-LIST	Indicates the MAC access list against which the incoming RA packet's source MAC address has to be validated.
PREFIX-LIST	Specifies the IPv6 prefix list against which advertised prefix information in incoming RA packets source need to be validated.
MIN HOP-LIMIT	Indicates the advertised hop count minimum limit.
MAX HOP-LIMIT	Indicates the advertised hop count maximum limit.
MANAGED CONF-FLAG	Indicates the managed address configuration flag status in the advertised RA packet.
RTR-PREF	Indicates the advertised default router preference value.

show ipv6 fhs snooping binding

Displays entries in the SBT.

Syntax

- **show ipv6 fhs snooping binding**
- **show ipv6 fhs snooping binding type <dynamic|static>**
- **show ipv6 fhs snooping binding vlan <1-4059>**
- **show ipv6 fhs snooping binding vlan <1-4059> ipv6-address WORD<0-46>**

Command Parameters

ipv6-address WORD<0-46>

Displays a specific binding entry based on its IPv6 address.

type <dynamic|static>

Displays binding entries by type.

vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

User EXEC

show ipv6 fhs status

Displays the IPv6 First Hop Security (FHS) status information.

Syntax

- **show ipv6 fhs status**
- **show ipv6 fhs status vlan**
- **show ipv6 fhs status vlan <1-4059>**

Command Parameters

vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

User EXEC

show ipv6 forwarding

Show IPv6 forwarding information.

Syntax

- **show ipv6 forwarding**
- **show ipv6 forwarding vrf WORD<1-16>**
- **show ipv6 forwarding vrfids WORD<0-512>**

Command Parameters

vrf WORD<1-16>

Specifies a VRF name. The VRF parameter is optional.

vrfids WORD<0-512>

Specifies a VRF by ID. The VRF parameter is optional.

Default

The default is disabled.

Command Mode

User EXEC

show ipv6 global

Show global IPv6 configuration information.

Syntax

- **show ipv6 global**
- **show ipv6 global vrf WORD<1-16>**
- **show ipv6 global vrfids WORD<0-512>**

Command Parameters

vrf WORD<1-16>

Specifies a VRF name. The VRF parameter is optional.

vrfids WORD<0-512>

Specifies a VRF by ID. The VRF parameter is optional.

Default

None

Command Mode

User EXEC

show ipv6 interface

Show IPv6 information for all or specific interfaces.

Syntax

- **show ipv6 interface gigabitethernet [{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]**
- **show ipv6 interface icmpstatistics [gigabitEthernet [{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]] [loopback <1-256>] [tunnel <1-2000>] vlan <1-4059>] [vrf WORD<1-16>] [vrfids WORD<0-512>]**
- **show ipv6 interface statistics [gigabitEthernet [{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]] [loopback <1-256>] [tunnel <1-2000>] [vlan <1-4059>] [vrf WORD<1-16>] [vrfids WORD<0-512>]**
- **show ipv6 interface [loopback <1-256>] [tunnel <1-2000> [vrf WORD<1-16>] [vrfids WORD<0-512>]] [vlan <1-4059>]**

Command Parameters

gigabitEthernet *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Displays IPv6 interface information for gigabitEthernet.

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

icmpstatistics [gigabitEthernet | tunnel | vlan]

Shows IPv6 ICMP statistics.

loopback <1-256>

Displays the interface loopback configurations.

loopback <1-256>

Identifies a loopback interface.

statistics [gigabitEthernet | tunnel | vlan]

Shows IPv6 interface statistics.

tunnel <1-2000>

Displays IPv6 interface information for a tunnel. The tunnel ID is expressed as a value from 1 to 2000.

vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

vrf WORD<1-16>

Specifies a VRF name. The VRF parameter is optional.

vrfids WORD<0-512>

Specifies a VRF by ID. The VRF parameter is optional.

Default

None

Command Mode

User EXEC

show ipv6 interface loopback

Display the IPv6 loopback interface details.

Syntax

- **show ipv6 interface loopback <1-256>**

Command Parameters

<1-256>

Specifies the interface ID value.

Default

None

Command Mode

User EXEC

show ipv6 ipvpn

Display the configuration for IPv6 VPN enabled VRFs.

Syntax

- **show ipv6 ipvpn [vrf WORD<1-16>] [vrfids WORD<0-512>]**

Command Parameters

vrf WORD<1-16>

Specifies a VRF.

vrfids WORD<0-512>

Specifies the VRF ID.

Default

None

Command Mode

User EXEC

Example

The following example displays the command output.

```
Switch:1>show ipv6 ipvpn
================================================================================================
                                        IPv6 IPVPN
================================================================================================
VRF Name            VRF ID   IPv6 IPVPN   IPv4 IPVPN   I-SID        I-SID Name
------------------------------------------------------------------------------------------------
vrfred              2        enabled      disabled     5555         ISID-5555
------------------------------------------------------------------------------------------------
1 out of 1 Total IPv6 L3 VSN, 1 active IPv6 and 0 active IPv4 displayed.
```

show ipv6 mld cache

Displays the learned multicast groups in the cache

Syntax

- **show ipv6 mld cache**

Default

None

Command Mode

User EXEC

Command Output

The **show ipv6 mld cache** command displays the following information:

Output field	Description
GRPADDR	Indicates the IPv6 address of the multicast address of interest.
LASTREPORTER	Indicates the IPv6 address of the last reporter.
INTERFACE	Indicates the ingress interface for MLDv2.
EXPIRATION	Displays the minimum amount of time remaining before this entry ages out. A value of 0 indicates that the entry will age out immediately if the router leaves the group.

Example

The following example displays the learned multicast groups in the cache.

```
Switch:1>show ipv6 mld cache
================================================================================================
                              MLD Cache Information

================================================================================================
================================================================================================
 GRPADDRESS/LASTREPORTER                  INTERFACE EXPIRATION
------------------------------------------------------------------------------------------------
 ff03:0:0:0:0:0:0:0/                      Vlan10    0 day(s), 00h:04m:12s
 fe80:0:0:0:200:9aff:fe68:3dd5

1 out of 1 entries displayed
```

show ipv6 mld group

Displays MLD group information

Syntax

- **show ipv6 mld group**

Default

None

Command Mode

User EXEC

Command Output

The **show ipv6 mld group** command displays the following information:

Output field	Description
GRPADDR	Specifies the multicast group address that others want to join to. A group address can be the same for many incoming ports.
MEMBER	Specifies the IP address of a source that has sent group report whishing to join this group.
INPORT	Identifies a physical interface or a logical interface which has received group reports from various sources.
EXPIRATION	Specifies the time left before group report expires on this port. This is updated upon receiving a group report.

Example

The following example displays the MLD group information.

```
Switch:1>show ipv6 mld group
================================================================================
                           Mld Group - GlobalRouter
================================================================================
GRPADDR/MEMBER                                  INPORT             EXPIRATION
--------------------------------------------------------------------------------
ff1e:0000:0000:0000:0000:0002:4444/         V666-1/4          0
2001:0db8:3c4d:0015:0000:0000:1a2f:1a2c

1 out of 1 group Receivers displayed

Total number of unique groups 1 text
```

show ipv6 mld group count

Displays the number of MLD entries

Syntax

- **show ipv6 mld group count**

Default

None

Command Mode

User EXEC

show ipv6 mld group group

Displays the MLD group IPv6 address

Syntax

- **show ipv6 mld group group WORD<0-255>**

Command Parameters

{slot/port [-slot/port]}

Identifies a single slot and port. If your platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

detail

Displays mldv2 specific data.

vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

WORD<0-255>

Specifies the IPv6 address.

Default

None

Command Mode

User EXEC

show ipv6 mld group group WORD<0-255> detail

Displays MLDv2 specific data.

Syntax

- **show ipv6 mld group group WORD<0-255> detail port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **show ipv6 mld group group WORD<0-255> detail vlan <1-4059>**

Command Parameters

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

User EXEC

Example

The following example displays detailed MLD group information.

```
Switch:1>show ipv6 mld group group ff1e:0000:0000:0000:0000:0000:0002:4444 detail

================================================================================
                        Mld Group Detail - GlobalRouter
================================================================================

Interface:                    Vlan666-1/4
MLDv2 Group:                  ff1e:0000:0000:0000:0000:0000:0002:4444
Interface Group Mode:         EXCLUDE
Interface Compatibility Mode: MLD_V2
Interface Group Timer:        258
V1 Host Timer:                Not Running
Interface Group Include Source List:
        Source Address                                Expires
        2001:0db8:3c4d:0015:0000:0000:1a2f:1aaa       258
Interface Group Exclude Source List :
        Source Address                                                Expires
        2001:0db8:3c4d:0015:0000:0000:1a2f:1bbb       N/A
```

show ipv6 mld group member-subnet

Diplays the MLD IPv6 address and network mask

Syntax

- **show ipv6 mld group member-subnet WORD<0-255>**

Command Parameters

WORD<0-255>

Specifies the IPv6 address or the network mask.

Default

None

Command Mode

User EXEC

show ipv6 mld interface

Displays the IPv6 MLD interface information

Syntax

- **show ipv6 mld interface [gigabitEthernet {slot/port[/sub-port]}] [vlan <1-4059>]**

Command Parameters

gigabitEthernet *{slot/port[/sub-port]}*

Identifies a single slot and port. If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

User EXEC

Command Output

The **show ipv6 mld interface** command displays the following information:

Output field	Description
IF	Specifies the internetwork layer interface value of the interface for which MLD is enabled.
STATUS	Indicates if MLD is activated on the interface.
VERSION	Indicates the version.
QUERIER	Indicates the address of the MLD Querier on the IPv6 subnet to which this interface attaches.
JOINS	Indicates the number of times a group membership has been added on this interface.
VLAN ID	Indicates the VLAN ID of the physical interface.
PORT NUM	Indicates the port number of the physical interface.
QUERY INTVL	Indicates the query interval, the frequency at which IPv6 MLD snooping host-query packets are transmitted on this interface.
QUERY MAX RESP	Indicates the maximum query response time advertised in IPv6 MLD snooping queries on this interface.
ROBUST	Indicates the robustness value.
LAST LIST QUERY	Indicates the last listener query interval. The last listener query interval is the maximum response delay inserted into group-specific queries sent in response to leave group messages, and it is also the amount of time between group-specific query messages.
SNOOP ENABLE	Indicates if snooping is enabled.
SSM SNOOP ENABLE	Indicates if ssm-snooping is enabled.
DYNAMIC DOWNGRADE ENABLE	Enables dynamic downgrade of the MLD version when older version query message is received.

Examples

The following example displays MLD interface information.

```
Switch:1>show ipv6 mld interface
================================================================================================
                          Mld Interface - GlobalRouter
================================================================================================
IF   STATUS VERS  OPER VERS QUERIER                                  Wrong Query JOINS MODE
------------------------------------------------------------------------------------------------
P1/3 inact  2     2         2001:0db8:3c4d:0015:0000:0000:1a2f:1aaa   0              0     pim
V666 inact  2     2         2001:0db8:3c4d:0015:0000:0000:1a2f:1bbb   0              0     pim

Switch:1>show ipv6 mld interface vlan 10
```

```
================================================================================
                                Vlan IPv6 Mld
================================================================================
VLAN QUERY QUERY ROBUST VERSION LAST  SNOOP  SSM     DYNAMIC
ID   INTVL MAX                  LIST  ENABLE SNOOP   DOWNGRADE
           RESP                 QUERY        ENABLE
--------------------------------------------------------------------------------
10   125   10    2      1       1     false  false   enabled

Switch:1>show ipv6 mld interface gigabitethernet 1/11
================================================================================
                                Port IPv6 MLD

================================================================================
PORT QUERY QUERY ROBUST VERSION LAST  DYNAMIC
NUM  INTVL MAX                  LIST  DOWNGRADE
           RESP                 QUERY
--------------------------------------------------------------------------------
1/11 125   10    2      1       1     enabled

1 out of 1 entries displayed
```

show ipv6 mld sender

Displays the MLD sender list

Syntax

- **show ipv6 mld sender**
- **show ipv6 mld sender count**
- **show ipv6 mld sender group WORD<0-255>**
- **show ipv6 mld sender sender-subnet WORD<0-255>**

Command Parameters

count

Displays number of MLD entries.

group WORD<0-255>

Displays the MLD IPv6 group address.

sender-subnet WORD<0-255>

Displays the MLD IPv6 address and network mask.

Default

None

Command Mode

User EXEC

show ipv6 mld snooping

Displays MLD snooping information

Syntax

- **show ipv6 mld snooping**

Default

None

Command Mode

User EXEC

Command Output

The **show ipv6 mld snooping** command displays the following information:

Output field	Description
IFINDEX	Identifies the index of the physical interface.
SNOOP ENABLE	Identifies whether snoop is enabled (true) or disabled (false).
SSM SNOOP ENABLE	Identifies whether SSM snoop is enabled (true) or disabled (false).
ACTIVE MROUTER PORTS	Displays all dynamic (querier port) and static mrouter ports that are active on the interface.
MROUTER EXPIRATION TIME	Specifies the time remaining before the multicast router is aged out on this interface. If the switch does not receive queries before this time expires, it flushes out all group memberships known to the VLAN. The Query Max Response Interval (obtained from the queries received) is used as the timer resolution.

Example

The following example displays the MLD snooping configuration status.

```
Switch:1>show ipv6 mld snooping
================================================================================
                          Mld Snooping - GlobalRouter
================================================================================
IFINDEX SNOOP    SSM     ACTIVE           MROUTER
        ENABLE   SNOOP   MROUTER          EXPIRATION
                 ENABLE  PORTS            TIME
--------------------------------------------------------------------------------
V666    False    False   NONE          0
1 out of 1 entries displayed
```

show ipv6 mld snoop-trace

Displays MLD snooping tracing information

Syntax

- **show ipv6 mld snoop-trace**

Default

None

Command Mode

User EXEC

Command Output

The **show ipv6 mld snoop-trace** command displays the following information:

Output field	Description
GROUP ADDRESS	Specifies the IP multicast address of the group traversing the router
SOURCE ADDRESS	Specifies the IP source address of the multicast group address.
IN VLAN	Specfies the ingress VLAN ID for the multicast source.
IN PORT	Specifies the ingress port for the multicast group.
OUT VLAN	Specifies the egress VLAN ID for the multicast group.
OUT PORT	Specifies the egress port of the multicast group.
TYPE	Specifies the port type on which the snoop entry is learnt.

Example

The following example displays MLD snooping tracing information.

```
Switch:1>show ipv6 mld snoop-trace
============================================================
              Mld Snoop Trace - GlobalRouter

============================================================
GROUP/
SOURCE                IN     IN   OUT    OUT      TYPE
ADDRESS               VLAN   PORT VLAN   PORT
------------------------------------------------------------
ff10:0:0:0:0:0:0:1/   10     1/15 10     1/16     ACCESS
5051:0:0:0:0:1:84:51
```

show ipv6 mld sys

Displays MLD system parameters

Syntax

- **show ipv6 mld sys**

Default

None

Command Mode

User EXEC

show ipv6 mld-host-cache

Displays the learned multicast group addresses in the host cache.

Syntax

- **show ipv6 mld-host-cache**

Default

None

Command Mode

User EXEC

Command Output

The **show ipv6 mld-host-cache** command displays the following information:

Output field	Description
GRPADDRESS	Shows the IP address of the multicast group. When combined with the group mask, it identifies the prefix that the local router uses to advertise itself as a C-RP router.
SELF	Indicates whether or not the group is locally registered into MLD Host Cache. • enabled — group is locally registered into MLD Host Cache • disabled — group is not locally registered into MLD Host Cache
PORT/VID	Shows the port or VLAN that learns the multicast group.

show ipv6 mroute interface

Displays the IPv6 mroute interface information

Syntax

- **show ipv6 mroute interface**
- **show ipv6 mroute interface gigabitEthernet {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

gigabitEthernet *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

User EXEC

Command Output

The **show ipv6 mroute interface** command displays the following information:

Output field	Description
INTERFACE	Displays the slot and port number or VLAN ID for this entry.
TTL	Displays the datagram time-to-live (TTL) threshold for the interface. IPv6 multicast datagrams with a TTL less than this threshold are not forwarded out of the interface. The default value of 0 means that all multicast packets are forwarded out of the interface.
PROTOCOL	Displays the protocol as one of the following: • other(1): none of the following • local(2): manually configured • netmgmt(3): configured by a network management protocol • pimSparseMode(8): PIM-SMv2 • igmpOnly(10) • pimSsmMode(11) • spb

Example

The following example displays the IPv6 mroute interface information.

```
Switch:1>show ipv6 mroute interface

=============================================================
                        Mroute Interface - GlobalRouter

=============================================================
INTERFACE   TTL       PROTOCOL
-------------------------------------------------------------
VLAN 2      1         pimsm
VLAN 7      1         pimsm
VLAN 10     1         pimsm
VLAN 20     1         pimsm

4 out of 4 total mroute entries displayed
```

show ipv6 mroute next-hop

Displays the IPv6 mroute next-hop information

Syntax

- **show ipv6 mroute next-hop**
- **show ipv6 mroute next-hop vlan <1-4059>**

Command Parameters

vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

User EXEC

Command Output

The **show ipv6 mroute next-hop** command displays the following information:

Output field	Description
Group	Displays the IPv6 multicast group for this entry that specifies a next hop on an outgoing interface.
Source	Displays the network address that, when combined with the corresponding next hop SourceMask value, identifies the source for this entry that specifies a next hop on an outgoing interface.
Source Mask	Displays the network mask that, when combined with the corresponding next hop Source value, identifies the source for this entry that specifies a next hop on an outgoing interface.
State	Displays whether the outgoing interface and next hop represented by this entry is currently being used to forward IPv6 datagrams as one of the following: • forwarding: Indicates that it is currently being used • pruned: Indicates that it is not being used
Expire Time	Displays the minimum amount of time that remains before this entry ages out. The value 0 indicates that the entry is not subject to aging.

Output field	Description
Protocol	Displays the protocol as one of the following: • other(1): none of the following • local(2): manually configured • netmgmt(3): configured by a network management protocol • pimSparseMode(8): PIM-SMv2 • igmpOnly(10) • pimSsmMode(11) • spb
Closest Member Hops	Displays the minimum number of hops between this router and any member of this IPv6 multicast group reached via this next hop on this outgoing interface. Any IPv6 multicast datagrams for the group which have a TTL less than this number of hops is not forwarded to this next hop.

Example

The following example displays the IPv6 mroute next-hop information.

```
Switch:1>show ipv6 mroute next-hop vlan 2
================================================================================
                                        Mroute Next-Hop - GlobalRouter
================================================================================
Vlan:          VLAN 2
Port:          -
Group:         ff30:0:0:0:0:0:0:1
Source:        5010:0:0:0:0:1:82:10
Source Mask:   64
State:         pruned
Expire Time:   202
Protocol:      pimsm
Closest Member Hops: 0
--------------------------------------------------------------------------------
Vlan:          VLAN 2
Port:          -
Group:         ff30:0:0:0:0:0:0:1
Source:        5010:0:0:0:0:1:82:11
Source Mask:   64
State:         pruned
Expire Time:   175
Protocol:      pimsm
Closest Member Hops: 0
--------------------------------------------------------------------------------

2 out of 4 total mroute entries displayed
--------------------------------------------------------------------------------
```

show ipv6 mroute route

Displays the IPv6 mroute route information

Syntax

- **show ipv6 mroute route**

Default

None

Command Mode

User EXEC

Command Output

The **show ipv6 mroute route** command displays the following information:

Output field	Description
GROUP	Displays the IPv6 multicast group for this entry that specifies a next hop on an outgoing interface.
SRCMASK	Displays the network mask that, when combined with the corresponding next hop Source value, identifies the source for this entry that specifies a next hop on an outgoing interface.
UPSTREAM_NBR	Shows the address of the upstream neighbor from which the IPv6 datagrams from these sources are received.
SOURCE	Displays the network address that, when combined with the corresponding next hop SourceMask value, identifies the source for this entry that specifies a next hop on an outgoing interface.
IF	Displays the slot and port number or VLAN ID for this entry.
EXPIR	Displays the minimum amount of time that remains before this entry ages out. The value 0 indicates that the entry is not subject to aging.
PROT	Displays the protocol as one of the following: • other(1): none of the following • local(2): manually configured • netmgmt(3): configured by a network management protocol • pimSparseMode(8): PIM-SMv2 • igmpOnly(10) • pimSsmMode(11) • spb

Example

The following example displays the IPv6 mroute route information.

```
Switch:1>show ipv6 mroute route

================================================================================================================
                                        Mroute Route - GlobalRouter
================================================================================================================
GROUP                                       SOURCE
SRCMASK
          UPSTREAM_NBR                                IF          EXPIR     PROT
----------------------------------------------------------------------------------------------------------------
ff30:0:0:0:0:0:0:1                          5010:0:0:0:0:1:82:10                          64
          0:0:0:0:0:0:0:0                           VLAN 10     202       pimsm
ff30:0:0:0:0:0:0:1                          5010:0:0:0:0:1:82:11                          64
          0:0:0:0:0:0:0:0                           VLAN 10     175       pimsm

2 out of 2 total mroute entries displayed
```

show ipv6 mroute stats

Display IPv6 multicast route statistics.

Syntax

- **show ipv6 mroute stats**
- **show ipv6 mroute stats [WORD<7-400>]**

Command Parameters

WORD<7-400>

Displays the IPv6 multicast route statistics. You can specify up to 10 group addresses in a single command by separating addresses with a comma (,).

Default

None

Command Mode

User EXEC

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

Command Output

The **show ipv6 mroute stats** command displays the following information:

Output field	Description
GroupAddress	Specifies the multicast group IP address for which to show statistics.
SourceCounter	Specifies the number of sources associated with the multicast route record.
IngressPackets	Specifies the number of packets received for the associated IP address.
IngressBytes	Specifies the number of bytes received for the associated IP address.
AverageSize	Specifies the average packet length for the associated group IP address. This information indicates only the ingress packet length and is calculated using the formula: ingress packet/ ingress byte.

show ipv6 nd dns search-list

Displays IPv6 DNS Search List (DNSSL) information.

Syntax

- **show ipv6 nd dns search-list [interface {gigabitEthernet [{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} | vlan <1-4059>}] | [vrf WORD<1-16>] | [vrfids WORD<0-512>]**

Default

The default is none.

Command Parameters

interface gigabitEthernet {slot/port[/sub-port][-slot/port[/sub-port]] [,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

vrf *WORD<1-16>*

Specifies the name of the VRF.

vrfids *WORD<0-512>*

Specifies the ID of the VRF. The value is an integer in the range of 0 to 512.

Command Mode

User EXEC

Command Output

The **show ipv6 nd dns search-list** command displays the following information:

Output field	Description
DOMAIN	Specifies the IPv6 DNS domain name.
IFID	Displays the interface ID.
INTERFACE	Displays the interface.
LIFETIME	Displays the time in which the DNS Search List (DNSSL) IP addresses is used for name resolution.
SEQUENCE	Displays the order of priority in which the DNSSL entries are listed in Router Advertisement options.
SUPPRESS	Displays false if DNS options are not suppressed and are included in the Router Advertisement message. Displays true if DNS options are suppressed and are not included in the Router Advertisement message.
VRF NAME	Displays the VRF name.

Example

The following example displays IPv6 DNSSL information.

```
Switch:1#show ipv6 nd dns search-list

================================================================================
                IPv6 Router Advertisement DNS Options - Search List - GlobalRouter
```

```
================================================================================================
IFID   VRF NAME         INTERFACE    SUPPRESS SEQUENCE LIFETIME        DOMAIN
------------------------------------------------------------------------------------------------
2058   GlobalRouter     V-10         false    8        1800            fifi.ro
2058   GlobalRouter     V-10         false    8        1800            mimi.com
2058   GlobalRouter     V-10         false    3        infinity        cici.net

3 out of 3 Total Num of Dnssl Entries displayed.
```

show ipv6 nd dns server interface

Displays Recursive DNS Server (RDNSS) information.

Syntax

- **show ipv6 nd dns server [interface [gigabitethernet { {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} | vlan <1-4059>}] | [vrf WORD<1-16>] | [vrfids WORD<0-512>]**

Default

The default is none.

Command Parameters

interface gigabitethernet *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

vrf *WORD<1-16>*

Specifies the name of the VRF.

vrfids *WORD<0-512>*

Specifies the ID of the VRF. The value is an integer in the range of 0 to 512.

Command Mode

User EXEC

Command Output

The **show ipv6 nd dns server** command displays the following information:

Output field	Description
IFID	Displays the interface ID.
INTERFACE	Displays the interface.
LIFETIME	Displays the time in which the Recursive DNS Server (RDNSS) IP addresses is used for name resolution.
SEQUENCE	Displays the order of priority in which the RDNSS entries are listed in Router Advertisement options.
SERVER	Displays the IPv6 Server address.
SUPPRESS	Displays false if DNS options are not suppressed and are included in the Router Advertisement message. Displays true if DNS options are suppressed and are not included in the Router Advertisement message.
VRF NAME	Displays the VRF name.

Example

The following example displays IPv6 RDNSS information.

```
Switch:1(config)#show ipv6 nd dns server
================================================================================================
====
                IPv6 Router Advertisement DNS Options - Reverse Servers - GlobalRouter
================================================================================================
====
IFID   VRF NAME         INTERFACE    SUPPRESS SEQUENCE LIFETIME
SERVER
------------------------------------------------------------------------------------------------
----
193    GlobalRouter     1/2          false    2        1800            2001:db8:1:1:1::
193    GlobalRouter     1/2          false    3        infinity        2001:db8:1:2:2::
193    GlobalRouter     1/2          false    8        1800            2001:db8:2:34:2::
2058   GlobalRouter     V-10         false    8        1800            2001:db8:5::
2058   GlobalRouter     V-10         false    3        infinity
2001:DB8:0:0:0:0:0:1
2058   GlobalRouter     V-10         false    8        1800
2001:db8:3:1::

6 out of 6 Total Num of Rdnss  Entries displayed.
```

show ipv6 nd interface

View neighbor discovery interface configuration.

Syntax

- **show ipv6 nd interface gigabitEthernet [{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]**
- **show ipv6 nd interface vlan [<1-4059>]**
- **show ipv6 nd interface vrf WORD<1-16>**
- **show ipv6 nd interface vrfids WORD<0-512>**

Command Parameters

gigabitEthernet *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

vrf WORD<1-16>

Specifies a VRF name. The VRF parameter is optional.

vrfids WORD<0-512>

Specifies a VRF by ID. The VRF parameter is optional.

Default

None

Command Mode

User EXEC

show ipv6 nd-prefix

View all configured neighbor discovery prefixes.

Syntax

- **show ipv6 nd-prefix [detail]**
- **show ipv6 nd-prefix detail [vrf WORD<1-16>] [vrfids WORD<0-512>]**
- **show ipv6 nd-prefix interface gigabitethernet [{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]**
- **show ipv6 nd-prefix interface vlan [<1-4059>]**
- **show ipv6 nd-prefix [vlan [<1-4059>]] [vrf WORD<1-16>] [vrfids WORD<0-512>]**

Command Parameters

detail

Shows detailed information.

gigabitEthernet *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

vrf WORD<1-16>

Specifies a VRF name. The VRF parameter is optional.

vrfids WORD<0-512>

Specifies a VRF by ID. The VRF parameter is optional.

Default

None

Command Mode

User EXEC

show ipv6 neighbor

View entries in the neighbor cache.

Syntax

- **show ipv6 neighbor**
- **show ipv6 neighbor interface gigbitethernet {slot/port[sub-port]}**
- **show ipv6 neighbor interface mlt <1-512>**
- **show ipv6 neighbor interface mlt <1-512> vrf WORD<1-16>**
- **show ipv6 neighbor interface mlt <1-512> vrfids WORD<0-512>**
- **show ipv6 neighbor interface vlan <1-4059>**
- **show ipv6 neighbor type <1-4>**
- **show ipv6 neighbor type <1-4> vrf WORD<1-16>**
- **show ipv6 neighbor type <1-4> vrfids WORD<0-512>**
- **show ipv6 neighbor vrf WORD<1-16>**
- **show ipv6 neighbor vrfids WORD<0-512>**
- **show ipv6 neighbor WORD<0-46>**
- **show ipv6 neighbor WORD<0-46> vrf WORD<1-16>**
- **show ipv6 neighbor WORD<0-46> vrfids WORD<0-512>**

Command Parameters

{slot/port[sub-port]}

Identifies a single slot and port. If your platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

<1-512>

Specifies the MLT ID.

type <1-4>

Specifies the type of mapping: 1: other, 2: dynamic, 3: static, or 4: local.

vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

vrf WORD<1-16>

Specifies a VRF name. The VRF parameter is optional.

vrfids WORD<0-512>

Specifies a VRF by ID. The VRF parameter is optional.

WORD<0-46>

Specifies the neighbor address.

Default

None

Command Mode

User EXEC

show ipv6 ospf

Show the IPv6 OSPFv3 global configuration.

Syntax

- **show ipv6 ospf**

Default

None

Command Mode

User EXEC

show ipv6 ospf area

Show the IPv6 OSPFv3 area configuration.

Syntax

- **show ipv6 ospf area [vrf WORD<1-16>] [vrfids WORD<0-512>]**
- **show ipv6 ospf area vrf WORD<1-16>**

- **show ipv6 ospf area vrfids WORD<0-512>**

Command Parameters

vrf <WORD 1-16>

Specifies the VRF name.

vrfids <WORD 0-512>

Specifies VRF IDs.

Default

None

Command Mode

User EXEC

show ipv6 ospf area-range

Show the IPv6 OSPFv3 range configuration.

Syntax

- **show ipv6 ospf area-range [vrf WORD<1-16>] [vrfids WORD<0-512>]**
- **show ipv6 ospf area-range vrf WORD<1-16>**
- **show ipv6 ospf area-range vrfids WORD<0-512>**

Command Parameters

vrf <WORD 1-16>

Specifies the VRF name.

vrfids <WORD 0-512>

Specifies VRF IDs.

Default

None

Command Mode

User EXEC

show ipv6 ospf ase

Show the IPv6 OSPFv3 as-external LSAs.

Syntax

- **show ipv6 ospf ase [vrf WORD<1-16>] [vrfids WORD<0-512>]**
- **show ipv6 ospf ase vrf WORD<1-16>**
- **show ipv6 ospf ase vrfids WORD<0-512>**

Command Parameters

metric-type <1-2>

Specifies the external type.

vrf <WORD 1-16>

Specifies the VRF name.

vrfids <WORD 0-512>

Specifies VRF IDs.

Default

None

Command Mode

User EXEC

show ipv6 ospf ase metric-type

Display Ipv6 as-external LSA's.

Syntax

- **show ipv6 ospf ase metric-type [vrf WORD<1-16>] [vrfids WORD<0-512>]**
- **show ipv6 ospf ase metric-type vrf WORD<1-16>**
- **show ipv6 ospf ase metric-type vrfids WORD<0-512>**

Command Parameters

vrf <WORD 1-16>

Specifies the VRF name.

vrfids <WORD 0-512>

Specifies VRF IDs.

Default

None

Command Mode

User EXEC

show ipv6 ospf interface

Show the IPv6 OSPFv3 interface configuration.

Syntax

- **show ipv6 ospf interface [gigabitEthernet {slot/port[sub-port]}] [vlan<1-4059>]**
- **show ipv6 ospf interface [vrf WORD<1-16>] [vrfids WORD<0-512>]**
- **show ipv6 ospf interface vrf WORD<1-16>**
- **show ipv6 ospf interface vrfids WORD<0-512>**

Command Parameters

{slot/port[sub-port]}

Identifies a single slot and port. If your platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

vrf <WORD 1-16>

Specifies the VRF name.

vrfids <WORD 0-512>

Specifies VRF IDs.

Default

None

Command Mode

User EXEC

show ipv6 ospf int-timers

Show the IPv6 OSPFv3 interface timers.

Syntax

- **show ipv6 ospf int-timers [vrf WORD<1-16>] [vrfids WORD<0-512>]**
- **show ipv6 ospf int-timers vrf WORD<1-16>**
- **show ipv6 ospf int-timers vrfids WORD<0-512>**

Command Parameters

vrf <WORD 1-16>

Specifies the VRF name.

vrfids <WORD 0-512>

Specifies VRF IDs.

Default

None

Command Mode

User EXEC

show ipv6 ospf lsdb

Show the IPv6 OSPFv3 Link-state database configuration.

Syntax

- **show ipv6 ospf lsdb**
- **show ipv6 ospf lsdb [area <A.B.C.D>] [lsa-type <1-11>] [lsid <0-4294967295>] [scope <1-3>] [adv-rtr <A.B.C.D>] [vrf WORD<1-16>] [vrfids WORD<0-512>] [detail]**
- **show ipv6 ospf lsdb [vrf WORD<1-16>] [vrfids WORD<0-512>]**
- **show ipv6 ospf lsdb adv-rtr {A.B.C.D}**
- **show ipv6 ospf lsdb adv-rtr {A.B.C.D} [vrf WORD<1-16>] [vrfids WORD<0-512>]**
- **show ipv6 ospf lsdb area {A.B.C.D}**
- **show ipv6 ospf lsdb detail**
- **show ipv6 ospf lsdb detail [vrf WORD<1-16>] [vrfids WORD<0-512>]**
- **show ipv6 ospf lsdb interface gigabitEthernet {slot/port[sub-port]}**
- **show ipv6 ospf lsdb interface vlan <1-4059>**
- **show ipv6 ospf lsdb lsa-type <1-11>**
- **show ipv6 ospf lsdb lsid <0-4294967295>**
- **show ipv6 ospf lsdb scope <1-3>**

- **show ipv6 ospf lsdb tunnel <1-2000>**
- **show ipv6 ospf lsdb vrf WORD<1-16>**
- **show ipv6 ospf lsdb vrfids WORD<0-512>**

Command Parameters

adv-rtr {A.B.C.D}

Specifies the advertise router configurations.

area {A.B.C.D}

Specifies the ipv6 lsdb area configurations.

gigabitEthernet {slot/port[sub-port]}

Identifies a single slot and port. If your platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

interface

Specifies the ipv6 ospf lsdb interface configurations.

lsa-type <1-11>

Specifies the ipv6 ospf lsdb lsa-type.

lsid <0-4294967295>

Specifies the ospf lsdb configuration for specific lsid.

scope <1-3>

Specifies the ipv6 ospf lsdb scope.

tunnel <1-2000>

Specifies the ipv6 ospf lsdb tunnel parameters.

vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

vrf <WORD 1-16>

Specifies the VRF name.

vrfids <WORD 0-512>

Specifies VRF IDs.

Default

None

Command Mode

User EXEC

show ipv6 ospf nbma-nbr interface

Show the IPv6 OSPFv3 NBMA neighbor configuration.

Syntax

- **show ipv6 ospf nbma-nbr interface gigabitEthernet {slot/port[sub-port]} [WORD<1-46>]**
- **show ipv6 ospf nbma-nbr interface vlan <1-4059> [WORD<1-46>]**

Command Parameters

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

gigabitEthernet {slot/port[sub-port]}

Identifies a single slot and port. If your platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

WORD<1-46>

Specifies an IPv6 address.

Default

None

Command Mode

User EXEC

show ipv6 ospf neighbor

Show the IPv6 OSPFv3 neighbor configuration.

Syntax

- **show ipv6 ospf neighbor [vrf WORD<1-16>] [vrfids WORD<0-512>]**
- **show ipv6 ospf neighbor vrf WORD<1-16>**

- **show ipv6 ospf neighbor vrfids WORD<0-512>**

Command Parameters

vrf <WORD 1-16>

Specifies the VRF name.

vrfids <WORD 0-512>

Specifies VRF IDs.

Default

None

Command Mode

User EXEC

show ipv6 ospf redistribute

Show the IPv6 OSPFv3 redistribution configuration.

Syntax

- **show ipv6 ospf redistribute [vrf WORD<1-16>] [vrfids WORD<0-512>]**
- **show ipv6 ospf redistribute vrf WORD<1-16>**
- **show ipv6 ospf redistribute vrfids WORD<0-512>**

Command Parameters

vrf <WORD 1-16>

Specifies the VRF name.

vrfids <WORD 0-512>

Specifies VRF IDs.

Default

None

Command Mode

User EXEC

show ipv6 ospf statistics

Show the IPv6 OSPFv3 statistics.

Syntax

- **show ipv6 ospf statistics [vrf WORD<1-16>] [vrfids WORD<0-512>]**
- **show ipv6 ospf statistics vrf WORD<1-16>**
- **show ipv6 ospf statistics vrfids WORD<0-512>**

Command Parameters

vrf <WORD 1-16>

Specifies the VRF name.

vrfids <WORD 0-512>

Specifies VRF IDs.

Default

None

Command Mode

User EXEC

Command Output

The **show ipv6 ospf statistics** command displays the following information:

Output field	Description
NumTxPkt	Shows the count of sent packets.
NumRxPkt	Shows the count of received packets.
NumTxDropPkt	Shows the count of sent, dropped packets.
NumRxDropPkt	Shows the count of received, dropped packets.
NumRxBadPkt	Shows the count of received, bad packets.
NumSpfRun	Shows the count of intra-area route table updates with calculations using this area link-state database.
LastSpfRun	Shows the count of the most recent SPF run.
LsdbTblSize	Shows the size of the link-state database table.
NumBadLsReq	Shows the count of bad link requests.
NumSeqMismatch	Shows the count of sequence mismatched packets.

show ipv6 pim

Displays PIM IPv6 configurations.

Syntax

- **show ipv6 pim**

Default

None

Command Mode

User EXEC

Example

```
Switch:1>show ipv6 pim
================================================================================================
                          Pim General Group - GlobalRouter
================================================================================================
PimStat               : enabled
Mode                  : sparse
StaticRP              : disabled
SptInfiniteThreshold  : enabled
FwdCacheTimeout       : 210
DiscDataTimeout       : 60
RegSupprTimeout       : 60
UniRouteChangeTimeout : 5
JoinPruneInt          : 60
```

show ipv6 pim active-rp

Displays information about the active rendezvous point (RP) for all groups or a specific group.

Syntax

- **show ipv6 pim active-rp**
- **show ipv6 pim active-rp group**

Command Parameters

group

Specifies the IPv6 group address.

Default

None

Command Mode

User EXEC

Command Output

The **show ipv6 pim active-rp** command displays the following information:

Output field	Description
GRPADDR	Shows the IPv6 address of the multicast group.
RP-ADDR	Shows the IPv6 address of the RP router. This address can be one of the local PIM-SM enabled interfaces or a gobal IPv6 address of the chosen RP based on hash function.
RP-PRIORITY	Shows the priority of the RP.

Example

The following example displays information about the active rendezvous point (RP) for all groups. If you do not specify an IPv6 address, you receive information about the active RP for all running multicast groups on the switch.

```
Switch:1>show ipv6 pim active-rp
================================================================
                  Pim Grp->RP Active RP Table - GlobalRouter
================================================================
GRPADDR/
RP-ADDR                                          RP-PRIORITY
----------------------------------------------------------------
ff30:0:0:0:0:0:0:1
5040:0:0:0:0:1:84:1
```

show ipv6 pim interface

Displays information about the IPv6 PIM-SM interface configuration on the switch.

Syntax

- **show ipv6 pim interface**
- **show ipv6 pim interface gigabitEthernet [{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]**
- **show ipv6 pim interface vlan <1-4059>**

Command Parameters

gigabitEthernet {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

User EXEC

Command Output

The **show ipv6 pim interface** command displays the following information:

Output field	Description
IF	Indicates the slot and port number or VLAN ID of the interface where PIM is enabled.
MODE	Indicates the configured mode of this interface. The valid modes are SSM and Sparse.
HLINT	Specifies how long to wait (in seconds) before the PIM router sends out the next hello message to neighboring switches. The default hello interval is 30 seconds.
JPINT	Specifies how long to wait (in seconds) before the PIM router sends out the next join or prune message to its upstream neighbors. The default join and prune interval is 60 seconds.
OPSTAT	Indicates the status of PIM on this interface: up or down.
INTF TYPE	Indicates the PIM interface type. The PIM interface type is active.
VLAN-ID or PORT-NUM	Indicates the slot and port number or VLAN ID of the interface where PIM is enabled.
PIM ENABLE	Indicates the administrative status of PIM.
MODE	Indicates the configured mode of this interface. The valid modes are SSM and Sparse.
HELLOINT	Specifies how long to wait (in seconds) before the PIM router sends out the next hello message to neighboring switches. The default hello interval is 30 seconds.

Output field	Description
JPINT	Specifies how long to wait (in seconds) before the PIM router sends out the next join or prune message to its upstream neighbors. The default join and prune interval is 60 seconds.
INTF TYPE	Indicates the PIM interface type. The PIM interface type is active.

Example

The command displays information about the IPv6 PIM-SM interface configuration on the switch.

```
Switch:1>show ipv6 pim interface
================================================================================
                          Pim Interface - GlobalRouter

================================================================================
IF               MODE        HLINT     JPINT     OPSTAT    INTF TYPE
--------------------------------------------------------------------------------
Vlan2            sparse      30        60        up        active
    ADDR/MASK :  fe80:0:0:0:12cd:aeff:fe6a:1902/64
    DR        :  fe80:0:0:0:12cd:aeff:fe6a:1902

Vlan7            sparse      30        60        up        active
    ADDR/MASK :  fe80:0:0:0:12cd:aeff:fe6a:1903/64
    DR        :  fe80:0:0:0:b647:5eff:fe3a:8582

Vlan10           sparse      30        60        up        active
    ADDR/MASK :  fe80:0:0:0:12cd:aeff:fe6a:1900/64
    DR        :  fe80:0:0:0:12cd:aeff:fe6a:1900

Vlan20           sparse      30        60        up        active
    ADDR/MASK :  fe80:0:0:0:12cd:aeff:fe6a:1901/64
    DR        :  fe80:0:0:0:12cd:aeff:fe6a:1901


Total PIM  Interface Entries:  4/0
--------------------------------------------------------------------------------
```

show ipv6 pim mode

Displays the IPv6 PIM mode.

Syntax

- **show ipv6 pim mode**

Default

None

Command Mode

User EXEC

Command Output

The **show ipv6 pim mode** command displays the following information:

Output field	Description
Mode	Indicates the PIM mode as SM or SSM.

Example

The following example displays the IPv6 PIM mode (SM or SSM).

```
Switch:1>show ipv6 pim mode

================================================================================
                          Pim Global Mode - GlobalRouter
================================================================================
Mode     : sparse
```

show ipv6 pim mroute

Displays the IPv6 mroute information

Syntax

- **show ipv6 pim mroute**
- **show ipv6 pim mroute source WORD<0-255>**

Command Parameters

group WORD<0-255>

Specifies mroute information for the group.

source WORD<0-255>

Specifies mroute information for the source.

terse

Displays brief configuration settings for mroute.

Default

None

Command Mode

User EXEC

Command Output

The **show ipv6 pim mroute** command displays the following information:

Output field	Description
Src	Displays the IPv6 address of the source that sends the multicast stream. A nonzero value indicates that a source sends multicast traffic. 0:0:0:0:0:0:0:0 indicates that this entry is created in response to a receiver that wants to receive this traffic.
Grp	Displays the IPv6 multicast group address.
RP	Displays the IPv6 address of the RP router.
Upstream	Displays the IPv6 address of the nexthop router towards the source of the multicast traffic or RP.
Flags	Displays the flags configured based on the condition of the receivers, the RP, and the senders. Use the legend at the bottom of the output to explain the flag values.
Incoming Port	Lists the port through which a multicast packet can ingress. If the port is a member of a Multi-Link Trunk (MLT), the packets can ingress on any port of the MLT.
Outgoing Ports	Lists all ports through which traffic that enters on incoming ports exit.
Joined Ports	Lists all ports that received PIM join messages.
Pruned Ports	Lists all ports that received PIM prune messages.
Leaf Ports	Lists multicast receivers that directly connect to the router.
Asserted Ports	Lists all ports that received assert messages. The router uses assert messages to help determine the best path to the source.
Prune Pending Ports	Lists all ports currently in the prune-pending state.
Assert Winner Ifs	Lists interfaces elected the assert winner. The winner continues to forward multicast traffic to the LAN.
Assert Loser Ifs	Lists interfaces not elected as the assert winner. The loser interface is pruned.
Timers	Displays the up time and expiration time for the entry in the routing table.
AssertVifTimer	Displays the time after which the assert winner state refreshes.

Example

The following commands displays information from the route table.

```
Switch:1>show ipv6 pim mroute
================================================================================================
                        Pim Multicast Route - GlobalRouter

================================================================================================
```

```
Src: 5010:0:0:0:0:1:82:10
Grp: ff30:0:0:0:0:0:0:1
RP: 5040:0:0:0:0:1:84:1
Upstream: NULL
 Flags: SPT CACHE SG
 Incoming  Port: Vlan10-1/9,
 Outgoing Ports: Vlan7-1/41/3-1/41/4,
 Joined   Ports: Vlan7-1/41/3(MLT- 7),
 Pruned   Ports: Vlan2-1/41/1(MLT- 2),
 Leaf     Ports:
 Asserted Ports:
 Prune Pending Ports:
 Assert Winner Ifs:
 Assert Loser Ifs:
TIMERS:
  Entry   JP   RS  Assert
    203    0   39       0
 VLAN-Id:     2     7    10    20
  Join-P:     0   160     0     0
  Assert:     0     0     0     0
 ------------------------------------------------------------------------------------------------------
Src: 5010:0:0:0:0:1:82:11
Grp: ff30:0:0:0:0:0:0:1
RP: 5040:0:0:0:0:1:84:1
Upstream: NULL
 Flags: SPT CACHE SG
 Incoming  Port: Vlan10-1/9,
 Outgoing Ports: Vlan7-1/41/3-1/41/4,
 Joined   Ports: Vlan7-1/41/3(MLT- 7),
 Pruned   Ports: Vlan2-1/41/1(MLT- 2),
 Leaf     Ports:
 Asserted Ports:
 Prune Pending Ports:
 Assert Winner Ifs:
 Assert Loser Ifs:
TIMERS:
  Entry   JP   RS  Assert
    176    0   34       0
 VLAN-Id:     2     7    10    20
  Join-P:     0   173     0     0
  Assert:     0     0     0     0
 ------------------------------------------------------------------------------------------------------

Total Num of Entries Displayed 2/2
Flags Legend:
SPT = Shortest path tree, WC=(*,Grp) entry, RP=Rendezvous Point tree, CACHE=Kernel
Cache, ASSERTED=Asserted, SG=(Src,Grp) entry, PMBR=(*,*,RP) entry, FWD_TO_RP=Forwarding to RP,
FWD_TO_DR=Forwarding to DR, SG_NODATA=SG Due to Join, CP_TO_CPU=Copy to CPU, STATIC_MROUTE=Static
Mroute, MRTF_SMLT_PEER_SG=Peer SG On Non-DR For SMLT
------------------------------------------------------------------------------------------------------
```

show ipv6 pim neighbor

Displays information about the neighboring routers configured with IPv6 PIM-SM

Syntax

- **show ipv6 pim neighbor**
- **show ipv6 pim neighbor WORD<0-255>**

Command Parameters

WORD<0-255>

Specifies the IPv6 address.

Default

None

Command Mode

User EXEC

Command Output

The **show ipv6 pim neighbor** command displays the following information:

Output field	Description
INTERFACE	Indicates the interface number.
ADDRESS	Indicates the IPv6 address of the PIM neighbor.
UPTIME	Indicates the elapsed time since this PIM neighbor last became a neighbor of the local router.
EXPIRE	Indicates the time that remains before this PIM neighbor times out.

Example

The following example displays information about the neighboring routers configured with IPv6 PIM-SM.

```
Switch:1>show ipv6 pim neighbor
================================================================================
                          Pim Neighbor - GlobalRouter

================================================================================
INTERFACE ADDRESS                          UPTIME               EXPIRE
--------------------------------------------------------------------------------
Vlan2     fe80:0:0:0:12cd:aeff:fe69:f900   0 day(s), 00:08:33   0 day(s), 00:01:43
Vlan7     fe80:0:0:0:b647:5eff:fe3a:8582   0 day(s), 00:08:30   0 day(s), 00:01:18

Total PIM  Neighbors Displayed:  2/2
--------------------------------------------------------------------------------
```

show ipv6 pim rp-hash

display information about the RPs selected for a multicast group

Syntax

- **show ipv6 pim rp-hash**

Default

None

Command Mode

User EXEC

Command Output

The **show ipv6 pim rp-hash** command displays the following information:

Output field	Description
GRPADDRESS	Shows the IPv6 address of the multicast group. When combined with the group mask, it identifies the prefix that the local router uses to advertise itself as a C-RP router.
GRPMASK	Shows the address mask of the multicast group. When combined with the group address, it identifies the prefix that the local router uses to advertise itself as a C-RP router.
RP-ADDR	Shows the IPv6 address of the static RP.
HOLDTIME	Shows the hold time of the static RP. The value is 0.
EXPTIME	Shows the minimum time remaining before the static RP is down. The value is 0.

Example

The following example displays information about the RPs selected for a multicast group.

```
Switch:1>show ipv6 pim rp-hash
================================================================================
                            Pim RPSet - GlobalRouter

================================================================================
GRPADDR/GRPMASK                                 HOLDTIME        EXPTIME
RP-ADDR
--------------------------------------------------------------------------------
ff10:0:0:0:0:0:0:0/64                           0               0
5040:0:0:0:0:1:84:1
ff30:0:0:0:0:0:0:0/64                           0               0
5040:0:0:0:0:1:84:1
ff30:1:0:0:0:0:0:0/32                           0               0
5174:0:0:0:0:1:84:1

Total RP Set Entries Displayed:  3/3
--------------------------------------------------------------------------------
```

show ipv6 pim static-rp

Displays the IPv6 static RP table

Syntax

- **show ipv6 pim static-rp**

Default

None

Command Mode

User EXEC

Command Output

The **show ipv6 pim static-rp** command displays the following information:

Output field	Description
GRPADDR	Indicates the IPv6 address of the multicast group. When combined with the group mask, it identifies the prefix that the local router uses to advertise itself as a static RP.
GRPMASK	Indicates the address mask of the multicast group. When combined with the group address, it identifies the prefix that the local router uses to advertise itself as a static RP.
RPADDR	Indicates the IPv6 address of the static RP. This address can be one of the local IPv6 PIM-SM enabled interfaces or any reachable IPv6 global address as configured using the **static-rp** CLI commands.
STATUS	Indicates the status of IPv6 static RP.

Example

The following example displays the IPv6 static RP table.

```
Switch:1>show ipv6 pim static-rp
================================================================================
                      Pim Static RP Table - GlobalRouter

================================================================================
GRPADDR/GRPMASK                                 STATUS
RPADDR
--------------------------------------------------------------------------------
ff10:0:0:0:0:0:0:0/64
5040:0:0:0:0:1:84:1                             valid
ff30:0:0:0:0:0:0:0/64
5040:0:0:0:0:1:84:1                             valid
ff30:1:0:0:0:0:0:0/32
5174:0:0:0:0:1:84:1                             valid

Total PIM Static RPs Displayed: 3/3
```

show ipv6 prefix-list

Show IPv6 prefix-list information.

Syntax

- **show ipv6 prefix-list [vrf WORD<1-16>] [vrfids WORD<0-512>]**
- **show ipv6 prefix-list prefix WORD<1-256>**
- **show ipv6 prefix-list vrf WORD<1-16>**
- **show ipv6 prefix-list vrfids WORD<0-512>**
- **show ipv6 prefix-list WORD<1-64>**

Command Parameters

prefix WORD<1-256>

Specifies the prefix.

vrf <WORD 1-16>

Specifies the VRF name.

vrfids <WORD 0-512>

Specifies VRF IDs.

WORD<1-64>

Specifies the prefix-list name.

Default

None

Command Mode

User EXEC

show ipv6 rip

Displays RIPng parameters per interface.

Syntax

- **show ipv6 rip**

Default

None

Command Mode

User EXEC

show ipv6 rip interface

Displays RIPng redistribution configuration.

Syntax

- **show ipv6 rip interface**
- **show ipv6 rip interface gigabitEthernet {slot/port[sub-port]}**
- **show ipv6 rip interface vlan <1-4059>**

Command Parameters

gigabitEthernet {slot/port[sub-port]}

Displays interface gigabitethernet RIPng configurations. {slot/port[sub-port]} identifies a single slot and port. If your platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

User EXEC

show ipv6 rip statistics

Displays RIPng statistics.

Syntax

- **show ipv6 rip statistics**

Default

None

Command Mode

User EXEC

show ipv6 route

Displays IPv6 route information.

Syntax

- **show ipv6 route [tunnel <1-2000>] [vlan <1-4059>] [vrf WORD<1-16> | vrfids WORD<0-512>]**

Default

None

Command Mode

User EXEC

show ipv6 route alternative

Display IPv6 alternative routes.

Syntax

- **show ipv6 route alternative protocol bgp**
- **show ipv6 route alternative protocol bgp vrf WORD<1-16>**
- **show ipv6 route alternative protocol bgp vrfids WORD<0-512>**
- **show ipv6 route alternative protocol isis**
- **show ipv6 route alternative protocol isis vrf WORD<1-16>**
- **show ipv6 route alternative protocol isis vrfids WORD<0-512>**
- **show ipv6 route alternative protocol local**
- **show ipv6 route alternative protocol local vrf WORD<1-16>**
- **show ipv6 route alternative protocol local vrfids WORD<0-512>**
- **show ipv6 route alternative protocol ospf vrf WORD<1-16>**
- **show ipv6 route alternative protocol ospf vrfids WORD<0-512>**
- **show ipv6 route alternative protocol rip**
- **show ipv6 route alternative protocol rip vrf WORD<1-16>**

- **show ipv6 route alternative protocol rip vrfids WORD<0-512>**
- **show ipv6 route alternative protocol static**
- **show ipv6 route alternative protocol static vrf WORD<1-16>**
- **show ipv6 route alternative protocol static vrfids WORD<0-512>**
- **show ipv6 route alternative spbm-nh-as-mac**
- **show ipv6 route alternative vrf WORD<1-16>**
- **show ipv6 route alternative vrfids WORD<0-512>**

Command Parameters

protocol {bgp | isis | local | ospf | rip | static}

Displays routes for a particular protocol

spbm-nh-as-mac

Shows spbm route next hop as mac.

vrf WORD<1-16>

Specifies a VRF name. The VRF parameter is optional.

vrfids WORD<0-512>

Specifies a VRF by ID. The VRF parameter is optional.

Default

None

Command Mode

User EXEC

show ipv6 route count-summary

Displays IPv6 route information.

Syntax

- **show ipv6 route count-summary [vrf WORD<1-16>] [vrfids WORD<0-512>]**

Default

None

Command Mode

User EXEC

show ipv6 route dest WORD<0-46>

Displays IPv6 route information.

Syntax

- **show ipv6 route dest WORD<0-46> [vrf WORD<1-16>] [vrfids WORD<0-512>]**

Default

None

Command Mode

User EXEC

show ipv6 route gigabitethernet {slot/port[sub-port]}

Displays IPv6 route information.

Syntax

- **show ipv6 route gigabitethernet {slot/port[sub-port]}**

Default

None

Command Mode

User EXEC

show ipv6 route next-hop WORD<0-46>

Displays IPv6 route information.

Syntax

- **show ipv6 route next-hop WORD<0-46> [vrf WORD<1-16>] [vrfids WORD<0-512>]**

Default

None

Command Mode

User EXEC

show ipv6 route preference

Display the IPv6 route preference information to confirm that the configuration is correct.

Syntax

- **show ipv6 route preference**
- **show ipv6 route preference vrf WORD<1-16>**
- **show ipv6 route preference vrfids WORD<0-512>**

Command Parameters

vrf WORD<1-16>

Specifies a VRF name. The VRF parameter is optional.

vrfids WORD<0-512>

Specifies a VRF by ID. The VRF parameter is optional.

Default

None

Command Mode

User EXEC

show ipv6 route protocol

Displays IPv6 route information by protocol type.

Syntax

- **show ipv6 route protocol bgp [vrf WORD<1-16>] [vrfids WORD<0-512>]**
- **show ipv6 route protocol isis [vrf WORD<1-16>] [vrfids WORD<0-512>]**
- **show ipv6 route protocol local [vrf WORD<1-16>] [vrfids WORD<0-512>]**
- **show ipv6 route protocol ospf [vrf WORD<1-16>] [vrfids WORD<0-512>]**
- **show ipv6 route protocol rip [vrf WORD<1-16>] [vrfids WORD<0-512>]**
- **show ipv6 route protocol static [vrf WORD<1-16>] [vrfids WORD<0-512>]**

Default

None

Command Mode

User EXEC

show ipv6 route spbm-nh-as-mac

Displays IPv6 route information.

Syntax

- **show ipv6 route spbm-nh-as-mac**

Default

None

Command Mode

User EXEC

show ipv6 route static

Displays IPv6 route information.

Syntax

- **show ipv6 route static [vrf WORD<1-16>] [vrfids WORD<0-512>]**

Default

None

Command Mode

User EXEC

show ipv6 source-guard

Displays IP Source Guard configuration on all ports or for a specified port, for IPv6 addresses.

Syntax

- **show ipv6 source-guard interface enabled**

Default

None

Command Mode

User EXEC

show ipv6 source-guard binding

Displays the IPv6 addresses that are allowed on all IP Source Guard enabled ports or for a specified port.

Syntax

- **show ipv6 source-guard binding**
- **show ipv6 source-guard binding [interface [gigabitethernet {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]] [WORD<0-46>]**

Command Parameters

interface gigabitethernet *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Displays the IPv6 addresses that are allowed on the specified IP Source Guard port.

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

WORD<0-46>

Specifies the IPv6 address bindings for the specified IPv6 address.

Default

None

Command Mode

User EXEC

show ipv6 tcp

You can display IPv6 TCP information. Check the health of connections, from the switch perspective, as they traverse the network detect intermittent connectivity detect attacks on resources determine which applications are active by checking the port numbers view statistics about TCP connections

Syntax

- **show ipv6 tcp**
- **show ipv6 tcp connections**
- **show ipv6 tcp connections vrf WORD<1-16>**
- **show ipv6 tcp connections vrfids WORD<0-512>**
- **show ipv6 tcp listener**
- **show ipv6 tcp listener vrf WORD<1-16>**
- **show ipv6 tcp listener vrfids WORD<0-512>**
- **show ipv6 tcp properties**
- **show ipv6 tcp properties vrf WORD<1-16>**
- **show ipv6 tcp properties vrfids WORD<0-512>**
- **show ipv6 tcp statistics**
- **show ipv6 tcp statistics vrf WORD<1-16>**
- **show ipv6 tcp statistics vrfids WORD<0-512>**

Command Parameters

connections

Displays IPv6 TCP connection table information that includes: local port remote port local address remote address state.

listener

Displays IPv6 TCP listener table information that includes: local port and local address.

properties

Displays IPv6 TCP global properties information that includes: RtoAlgorithm - the timeout value used for retransmitting unacknowledged octets. RtoMin -the minimum time, in milliseconds, permitted by a TCP implementation for the retransmission timeout. RtoMax - the maximum time (in milliseconds) permitted by a TCP implementation for the transmissions timeout. MaxConn - the maximum connections for the device.

statistics

Displays IPv6 TCP global statistics information that includes: ActiveOpens, PassiveOpens, AttemptFails, EstabResets, CurrEstab, InSegs, OutSegs, RetransSegs, InErrs, OutRsts, HCInSegs, and HCOutSegs.

vrf WORD<1-16>

Specifies a VRF name. The VRF parameter is optional.

vrfids WORD<0-512>

Specifies a VRF by ID. The VRF parameter is optional.

Default

None

Command Mode

User EXEC

show ipv6 trace

Show the status of IPv6 trace commands.

Syntax

- **show ipv6 trace base**
- **show ipv6 trace base vrf WORD<1-16>**
- **show ipv6 trace base vrfids WORD<0-512>**
- **show ipv6 trace forwarding**
- **show ipv6 trace forwarding vrfids WORD<0-512>**
- **show ipv6 trace forwarding vrf WORD<1-16>**
- **show ipv6 trace nd**
- **show ipv6 trace nd vrf WORD<1-16>**
- **show ipv6 trace nd vrfids WORD<0-512>**
- **show ipv6 trace ospf**
- **show ipv6 trace ospf vrf WORD<1-16>**
- **show ipv6 trace ospf vrfids WORD<0-512>**
- **show ipv6 trace rip**
- **show ipv6 trace rtm**
- **show ipv6 trace rtm vrf WORD<1-16>**
- **show ipv6 trace rtm vrfids WORD<0-512>**
- **show ipv6 trace transport**
- **show ipv6 trace transport vrfids WORD<0-512>**
- **show ipv6 trace transport vrf WORD<1-16>**

Command Parameters

[base|forwarding|nd|ospf|rip|rtm|transport]

Shows the status for the selected type of trace command.

vrf WORD<1-16>

Specifies a VRF name. The VRF parameter is optional.

vrfids WORD<0-512>

Specifies a VRF by ID. The VRF parameter is optional.

Default

None

Command Mode

User EXEC

show ipv6 tunnel

Shows information about configured IPv6 tunnels, for example, operational state or addresses.

Syntax

- **show ipv6 tunnel <1-2000>**
- **show ipv6 tunnel detail**
- **show ipv6 tunnel local {A.B.C.D}**
- **show ipv6 tunnel remote {A.B.C.D}**

Command Parameters

<1-2000>

Shows configuration information for a specific tunnel ID.

detail

Shows detailed configuration information, for example, the operational status and origin.

local {A.B.C.D}

Shows configuration information for a specific local endpoint address.

remote {A.B.C.D}

Shows configuration information for a specific remote endpoint address.

Default

None

Command Mode

User EXEC

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

show ipv6 udp

Show IPv6 User Datagram Protocol (UDP) information.

Syntax

- **show ipv6 udp [vrf WORD<1-16> | vrfids WORD<0-512>]**
- **show ipv6 udp endpoints [vrf WORD<1-16> | vrfids WORD<0-512>]**
- **show ipv6 udp endpoints vrf WORD<1-16>**
- **show ipv6 udp endpoints vrfids WORD<0-512>**
- **show ipv6 udp vrf WORD<1-16>**
- **show ipv6 udp vrfids WORD<0-512>**

Command Parameters

endpoints

Shows IPv6 UDP information for the endpoints.

vrf WORD<1-16>

Specifies a VRF name. The VRF parameter is optional.

vrfids WORD<0-512>

Specifies a VRF by ID. The VRF parameter is optional.

Default

None

Command Mode

User EXEC

show ipv6 vrrp

Shows the global status of Virtual Router Redundancy Protocol (VRRP) for IPv6.

Syntax

- **show ipv6 vrrp**
- **show ipv6 vrrp vrf WORD<1-16>**
- **show ipv6 vrrp vrfids WORD<0-512>**

Command Parameters

vrf WORD<1-16>

Specifies a VRF name. The VRF parameter is optional.

vrfids WORD<0-512>

Specifies a VRF by ID. The VRF parameter is optional.

Default

None

Command Mode

User EXEC

show ipv6 vrrp address

Display address information for a specific link-local address or virtual router ID.

Syntax

- **show ipv6 vrrp address**
- **show ipv6 vrrp address link-local WORD<0-127>**
- **show ipv6 vrrp address link-local WORD<0-127> vrfids WORD<0-512>**
- **show ipv6 vrrp address link-local WORD<0-127> vrf WORD<1-16>**
- **show ipv6 vrrp address vrf WORD<1-16>**
- **show ipv6 vrrp address vrfids WORD<0-512>**
- **show ipv6 vrrp address vrid <1-255>**
- **show ipv6 vrrp address vrid <1-255> vrf WORD<1-16>**
- **show ipv6 vrrp address vrid <1-255> vrfids WORD<0-512>**

Command Parameters

link-local WORD<0-127>

Displays information by link-local IPv6 address.

vrf WORD<1-16>

Specifies a VRF name. The VRF parameter is optional.

vrfids WORD<0-512>

Specifies a VRF by ID. The VRF parameter is optional.

vrid <1-255>

Displays information by virtual router ID.

Default

None

Command Mode

User EXEC

show ipv6 vrrp interface

Shows the extended Virtual Router Redundancy Protocol (VRRP) configuration for all interfaces or for a specific interface.

Syntax

- **show ipv6 vrrp interface [verbose] [vrf WORD<1-16>] [vrfids WORD<0-512>] [vrid <1-255>]**
- **show ipv6 vrrp interface gigabitethernet [{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}] [verbose][vrf WORD<1-16>] [vrfids WORD<0-512>]**
- **show ipv6 vrrp interface vlan [<1-4059>] [verbose] [vrf WORD<1-16>] [vrfids WORD<0-512>]**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

<1-255>

Displays information by virtual router ID.

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

verbose

Displays extended information.

vrf WORD<1-16>

Specifies a VRF name. The VRF parameter is optional.

vrfids WORD<0-512>

Specifies a VRF by ID. The VRF parameter is optional.

Default

None

Command Mode

User EXEC

show ipv6 vrrp interface gigabitethernet statistics

Shows the IPv6 gigabitEthernet interface statistics.

Syntax

- **show ipv6 vrrp interface gigabitethernet statistics [{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}] [verbose]**

Command Parameters

statistics *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Displays the IPv6 statistics for a port.

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

verbose
Displays extended information.

Default

None

Command Mode

User EXEC

show ipv6 vrrp statistics

Views VRRP for IPv6 statistics to manage network performance.

Syntax

- **show ipv6 vrrp statistics**
- **show ipv6 vrrp statistics link-local WORD<0-127>**
- **show ipv6 vrrp statistics link-local WORD<0-127> vrf WORD<1-16>**
- **show ipv6 vrrp statistics link-local WORD<0-127> vrfids WORD<0-512>**
- **show ipv6 vrrp statistics vrf WORD<1-16>**
- **show ipv6 vrrp statistics vrfids WORD<0-512>**
- **show ipv6 vrrp statistics vrid <1-255>**
- **show ipv6 vrrp statistics vrid <1-255> vrf WORD<1-16>**
- **show ipv6 vrrp statistics vrid <1-255> vrfids WORD<0-512>**

Command Parameters

<1-255>
Displays information by virtual router ID.

vrf WORD<1-16>
Specifies a VRF name. The VRF parameter is optional.

vrfids WORD<0-512>
Specifies a VRF by ID. The VRF parameter is optional.

WORD<0-127>
Displays information by link-local IPv6 address.

Default

None

Command Mode

User EXEC

Command Output

The **show ipv6 vrrp statistics** command displays the following information:

Output field	Description
CHK_SUM_ERR	Shows the number of VRRP packets received with an invalid VRRP checksum value.
VERSION_ERR	Shows the number of VRRP packets received with an unknown or unsupported version number.
VRID_ERR	Shows the number of VRRP packets received with an invalid VrID for this virtual router.
BECOME_MASTER	Shows the total number of times that the state of this virtual router has transitioned to master. Discontinuities in the value of this counter can occur at re-initialization of the management system, and at other times as indicated by the value of DiscontinuityTime.
ADVERTISE_RCV	Shows the total number of VRRP advertisements received by this virtual router. Discontinuities in the value of this counter can occur at re-initialization of the management system, and at other times as indicated by the value of DiscontinuityTime.
ADVERTISE_INT_ERR	Shows the total number of VRRP advertisement packets received for which the advertisement interval is different than the one configured for the local virtual router. Discontinuities in the value of this counter can occur at re-initialization of the management system, and at other times as indicated by the value of DiscontinuityTime.
TTL_ERR	Shows the total number of VRRP packets received by the virtual router with IPv4 TTL (for VRRP over IPv4) or IPv6 Hop Limit (for VRRP over IPv6) not equal to 255. Discontinuities in the value of this counter can occur at re-initialization of the management system, and at other times as indicated by the value of DiscontinuityTime.
PRIO_0_RCV	Shows the total number of VRRP packets received by the virtual router with a priority of 0. Discontinuities in the value of this counter can occur at re-initialization of the management system, and at other times as indicated by the value of DiscontinuityTime.
PRIO_0_SENT	Shows the total number of VRRP packets sent by the virtual router with a priority of 0. Discontinuities in the value of this counter can occur at re-initialization of the management system, and at other times as indicated by the value of DiscontinuityTime.
INVALID_TYPE_ERR	Shows the number of VRRP packets received by the virtual router with an invalid value in the 'type' field. Discontinuities in the value of this counter can occur at reinitialization of the management system, and at other times as indicated by the value of DiscontinuityTime.

Output field	Description
ADDRESS_LIST_ERR	Shows the total number of packets received for which the address list does not match the locally configured list for the virtual router. Discontinuities in the value of this counter can occur at reinitialization of the management system, and at other times as indicated by the value of DiscontinuityTime.
UNKNOWN_AUTHTYPE	Shows the total number of packets received with an unknown authentication type.
PACKLEN_ERR	Shows the total number of packets received with a packet length less than the length of the VRRP header. Discontinuities in the value of this counter can occur at reinitialization of the management system, and at other times as indicated by the value of DiscontinuityTime.

show isis

Display the global Intermediate-System-to-Intermediate-System (IS-IS) configuration.

Syntax

- **show isis**

Default

None

Command Mode

User EXEC

Command Output

The **show isis** command displays the following information:

Output field	Description
AdminState	Indicates the administrative state of the router.
RouterType	Indicates the router Level: l1, l2, or l1/2.
System ID	Indicates the system ID.
Max LSP Gen Interval	Indicates the maximum time between LSP updates in seconds.
Metric	Indicates if the metric is narrow or wide.
Overload-on-startup	Indicates the IS-IS overload-on-startup value in seconds. The overload-onstartup value is used as a timer to control when to send out Link State Packets (LSPs) with the overload bit cleared after IS-IS startup. The default value is 20 seconds.

Output field	Description
Overload	Indicates if there is an overload condition.
Csnp Interval	Indicates the interval between CSNP updates in seconds.
PSNP Interval	Indicates the interval between PSNP updates in seconds.
Rxmt LSP Interval	Indicates the received LSP time interval.
spf-delay	Indicates an SPF delay in milliseconds. The default value is 100 milliseconds.
Router Name	Indicates the IS-IS name of the router.
ip source-address	Indicates the IP source address used for SPBM IP shortcuts.
ipv6 source-address	Indicates the IPv6 source address used for SPBM IP shortcuts.
ip tunnel source-address	Indicates the IP tunnel source address used for SPBM Fabric Extend.
Tunnel vrf	Indicates the name of the vrf that contains the tunnel endpoints.
ip tunnel mtu	Indicates the maximum size of a packet that can be transmitted through the IP tunnel.
Num of Interfaces	Indicates the number of interfaces on the router.
Num of Area Addresses	Indicates the number of area addresses on the router.
Num of Summary Address	Indicates the summary of the addresses on router.
inband-mgmt-ip	Indicates the DvR management IP address for this node, in the DvR domain.
backbone	Indicates whether this node is part of the DvR backbone.
Dynamically Learned Area	For Fabric Area Network (FAN) members, specifies the IS-IS area that is dynamically learned from the neighbor's Hello PDU if the node does not have the IS-IS manual area configured.
FAN Member	Indicates whether the node is a member of the FAN.
Hello Padding	Indicates IS-IS hello packets are padded to detect mismatched MTUs on adjacencies.
Multi-area OperState	Indicates the Multi-area SPB operational state as: • Disabled—Multi-area SPB is disabled on the switch. • Init—the switch is initializing to function as a boundary node. • Designated—the switch is operating as a designated boundary node. • Non-designated—the switch is operating as a non-designated boundary node.
Multi-Area Flags	home-always-up — Indicates that the boundary node forwards traffic from the UNIs to the remote-area and from the remote-area to the UNIs without requiring an established adjacency in the home area.

Output field	Description
Designated BN Hostname **Note:** Exception: only applies to 5520 Series, 5720 Series, 7520 Series, and 7720 Series.	Specifies the hostname of the designated boundary node.
Designated BN Home System ID **Note:** Exception: only applies to 5520 Series, 5720 Series, 7520 Series, and 7720 Series.	Specifies the system ID of the designated boundary node in the home area.
Designated BN Remote System ID **Note:** Exception: only applies to 5520 Series, 5720 Series, 7520 Series, and 7720 Series.	Specifies the system ID of the designated boundary node in the remote area.

Example

```
Switch:1>show isis
================================================================================
                              ISIS General Info
================================================================================
                            AdminState : enabled
                            RouterType : Level 1
                             System ID : 0014.c7e1.33df
                  Max LSP Gen Interval : 900
                                Metric : wide
                 Overload-on-startup : 20
                              Overload : false
                          Csnp Interval : 10
                          PSNP Interval : 2
                    Rxmt LSP Interval : 5
                             spf-delay : 100
                           Router Name : Switch1
                    ip source-address : 41.41.41.100
                  ipv6 source-address : 41:0:0:0:0:0:0:100
             ip tunnel source-address : 11.11.12.11
                         Tunnel vrf : spboip
                       ip tunnel mtu : 1950
                  Num of Interfaces : 2
               Num of Area Addresses : 1
                      inband-mgmt-ip :
                           backbone : disabled
             Dynamically Learned Area : 00.0000.0000
```

```
                            FAN Member : No
                         Hello Padding : enabled
                  Multi-Area OperState : disabled
                      Multi-Area Flags : home-always-up
               Designated BN Hostname : BN4435
        Designated BN Home System ID : 0010.7400.4435
      Designated BN Remote System ID : 0020.7400.4435
```

show isis adjacencies

Display Intermediate-System-to-Intermediate-System (IS-IS) adjacencies.

Syntax

- **show isis adjacencies [home|remote] [verbose]**

Command Parameters

home

Displays the IS-IS adjacencies that the system configures in the home area.

remote

Displays the IS-IS adjacencies that the system configures in the remote area.

verbose

Specifies verbose mode, which provides a detailed output.

Default

None

Command Mode

User EXEC

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine User Guide*.

Command Output

The **show isis adjacencies** command displays the following information:

Parameter	Description
INTERFACE	Indicates the interface port, MLT, or logical interface on which IS-IS exists.
L	Indicates the level of the adjacent router.

Parameter	Description
STATE	Indicates the state of IS-IS on the interface (enabled [UP] or disabled [DOWN]). The state is non-configurable.
UPTIME	Indicates the length of time the adjacency has been up in ddd hh:mm:ss format.
PRI	Indicates the priority of the neighboring Intermediate System for becoming the Designated Intermediate System (DIS).
HOLDTIME	Indicates the calculated hold time for the Hello (hello multiplier x hello interval); if the route is determined to be a designated router, then the product is divided by 3.
SYSID	Indicates the adjacent system ID of the router.
HOST-NAME	Indicates the hostname listed in the LSP. If the host name is not configured, then the system name is displayed.
STATUS	Indicates if the adjacency is active.
AREA	Indicates the type of area as home or remote.
AREA-NAME	Indicates the name of the area.
PORT MEMBERS	Displays the members of an MLT. This information displays if you use the *verbose* parameter.

Example

The **show isis adjacencies verbose** command displays IS-IS adjacencies and MLT port members.

```
Switch:1>show isis adjacencies verbose
================================================================================================================
                                ISIS Adjacencies
================================================================================================================
INTERFACE L STATE  UPTIME   PRI  HOLDTIME   SYSID          HOST-NAME     STATUS   AREA  AREA-NAME    PORT MEMBERS
----------------------------------------------------------------------------------------------------------------
Port1/11  1  UP    05:02:18 127   22       beb0.0000.7204   Switch-Lab1   ACTIVE   HOME  area-9.00.02  1/51-1/52
Port1/12  1  UP    05:00:18 127   25       beb0.0000.7204   Switch-Lab2   BACKUP   HOME  area-9.00.02  1/49-1/50
Port1/16  1  UP    05:00:25 127   24       beb0.0000.7204   Switch-Lab3   BACKUP   HOME  area-9.00.02

----------------------------------------------------------------------------------------------------------------
 Home:   3 out of 3 interfaces have formed an adjacency
 Remote: 0 out of 0 interfaces have formed an adjacency

----------------------------------------------------------------------------------------------------------------
```

show isis area

Displays the Intermediate-System-to-Intermediate-System (IS-IS) area information.

Syntax

- **show isis area**

Default

The default is none.

Command Mode

User EXEC

Example

Displaying the IS-IS area information on the switch:

```
Switch:1>show isis area
================================================================================
                                        ISIS Area Address
================================================================================

ADDRESS                          ORIGIN   AREA-ROLE  AREA-NAME
--------------------------------------------------------------------------------
10.10.10.11                      config   HOME       v49_1
10.10.10.21                      config   REMOTE     v49_2
--------------------------------------------------------------------------------
```

show isis area-vnode

Displays the IS-IS SPBM area virtual node information.

Syntax

- **show isis area-vnode**

Default

The default is none.

Command Mode

User EXEC

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

Command Output

The **show isis area-vnode** command displays the following information:

Parameter	Description
REPRESENTED-AREA	Indicates the type of area that the area virtual node represents.
SYSTEM-ID	Indicates the adjacent system ID of the router.
NICK-NAME	Indicates the nickname of the area virtual node.

Parameter	Description
HOST-NAME	Indicates the hostname listed in the LSP. If the host name is not configured, then the system name is displayed.
AREA	Indicates the type of area as home or remote.

Example

Displaying the IS-IS SPBM area virtual node information on the switch:

```
Switch:1>show isis area-vnode
================================================================================================
                                    ISIS SPBM Multi-Area VNode Info
================================================================================================
VNODE             VNODE         VNODE                            REPRESENTED    REPRESENTED VNODE
SYSTEM-ID         NICK-NAME     HOST-NAME       AREA-ADDRESS     AREA           USED-IN-AREA
------------------------------------------------------------------------------------------------
9200.30ff.fff0    9.00.30       area-9.00.30    49.0030          HOME           REMOTE
9200.50ff.fff0    9.00.50       area-9.00.50    49.0050          REMOTE         HOME
```

show isis dup-detection-temp-disable

Displays the Intermediate-System-to-Intermediate-System (IS-IS) duplicate detection temp disable inf

Syntax

- **show isis dup-detection-temp-disable remaining-time**

Command Parameters

remaining-time

Displays IS-IS duplicate detection temp disable remaining time.

Default

None

Command Mode

User EXEC

show isis int-auth

Display the Intermediate-System-to-Intermediate-System (IS-IS) interface authentication configuration.

Syntax

- **show isis int-auth**
- **show isis int-auth [home|remote]**

Command Parameters

home

Displays the IS-IS interface authentication information that the system configures in the home area.

remote

Displays the IS-IS interface authentication information that the system configures in the remote area.

Default

None

Command Mode

User EXEC

Command Output

The **show isis int-auth** command displays the following information:

Parameter	Description
IFIDX	Shows the interface index for the Ethernet or MLT interface.
AUTH-TYPE	Shows the type of authentication configured for the interface. Types include: • none for no authentication. • simple for a simple password. • hmac-md5 for MD5 encryption. • hmac-sha–256 for SHA-256 encryption.
AUTH-KEYID	Shows the authentication password configured for the interface. If the KeyId is not configured, the value is 0.
AUTH-KEY	Shows the HMAC-MD5 key needed for encryption. This is used only for HMAC-MD5.
ORIGIN	Indicates the origin of the IS-IS circuit configuration on the port, either manually configured through CLI or EDM, or dynamically configured through Auto-sense.
AREA	Indicates the type of area as home or remote.
AREA-NAME	Indicates the name of the area.

Example

```
Switch:1>show isis int-auth home
================================================================================
                              ISIS Interface Auth
================================================================================
IFIDX        AUTH-TYPE   AUTH-KEYID  AUTH-KEY   ORIGIN    AREA   AREA-NAME
--------------------------------------------------------------------------------
Mlt2         none        0                      CONFIG    HOME
area-9.00.02
Port1/21     none        0                      CONFIG    HOME   area-9.00.02
```

show isis int-ckt-level

Display the Intermediate-System-to-Intermediate-System (IS-IS) circuit level parameters.

Syntax

- **show isis int-ckt-level**
- **show isis int-ckt-level [home|remote]**

Command Parameters

home

Displays the IS-IS interface circuit level parameters that the system configures in the home area.

remote

Displays the IS-IS interface circuit level parameters that the system configures in the remote area.

Default

None

Command Mode

User EXEC

Command Output

The **show isis int-ckt-level** command displays the following information:

Parameter	Description
IFIDX	Shows the interface index for the ethernet or MLT interface.
LEVEL	Shows the level of the IS-IS interface (Level 1 [default] or Level 2).

Parameter	Description
DIS	Shows the Designated Intermediate System (DIS) of the circuit.
CKT ID	Displays the CKT ID.
AREA	Indicates the type of area as home or remote.
AREA-NAME	Indicates the name of the area.

Example

```
Switch:1>show isis int-ckt-level home
================================================================================
                        ISIS Circuit level parameters
================================================================================
IFIDX           LEVEL          DIS        CKTID      AREA   AREA-NAME
--------------------------------------------------------------------------------
Mlt2            Level 1                    1          HOME    area-9.00.02
Port1/21        Level 1                    2          HOME    area-9.00.02
```

show isis int-counters

Display Intermediate-System-to-Intermediate-System (IS-IS) interface counters.

Syntax

- **show isis int-counters**
- **show isis int-counters [home|remote]**

Command Parameters

home

Displays the IS-IS interface counters that the system configures in the home area.

remote

Displays the IS-IS interface counters that the system configures in the remote area.

Default

None

Command Mode

User EXEC

Command Output

The **show isis int-counters** command displays the following information:

Parameter	Description
IFIDX	Shows the interface index for the Ethernet or MLT interface.
LEVEL	Shows the level of the IS-IS interface.
AUTH FAILS	Shows the number of times authentication has failed per interface.
ADJ CHANGES	Shows the number of times the adjacencies have changed.
INIT FAILS	Shows the number of times the adjacency has failed to establish.
REJ ADJ	Shows the number of times the adjacency was rejected by another router.
ID LEN	Shows the ID field length mismatches.
MAX AREA	Shows the maximum area address mismatches.
LAN DIS CHANGES	Shows the number of times the DIS has changed.
AREA	Indicates the type of area as home or remote.
AREA-NAME	Indicates the name of the area.

Example

```
Switch:1>show isis int-counters
================================================================================================
                                ISIS Interface Counters
================================================================================================
IFIDX    LEVEL   AUTH    ADJ       INIT    REJ   ID LEN  MAX AREA  LAN DIS  AREA  AREA-NAME
                 FAILS   CHANGES   FAILS   ADJ                     CHANGES
------------------------------------------------------------------------------------------------
Mlt2     Level 1  0       1        0       0      0       0        0        HOME  area-9.00.02
Port1/21 Level 1  0       1        0       0      0       0        0        HOME  area-9.00.02
```

show isis interface

Display Intermediate-System-to-Intermediate-System (IS-IS) interface configuration and status parameters (including adjacencies).

Syntax

- **show isis interface [l1|l2|l12] [home|remote] [verbose]**

Command Parameters

home

Displays the IS-IS interface information that the system configures in the home area.

[l1 | l2 | l12]

Displays the interface information for the specified level: l1 (Level 1), l2 (Level 2), l12 (Level 1 and 2). The switch is a Level 1 router, which means it has only Level 1 links and can route within only one area. Level 1 routers route only within their assigned area and cannot route outside that area. Level 2 routers route between areas and toward other domains. Level 1/Level 2 routers route within an assigned area and between areas. Level 1/Level 2 routers maintain both a Level 1 Link State Database and a Level 2 Link State Database.

remote

Displays the IS-IS interface information that the system configures in the remote area.

verbose

Displays more information in additional columns.

Default

None

Command Mode

User EXEC

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine User Guide*.

Command Output

The **`show isis interface`** command displays the following information:

Parameter	Description
INTERFACE	Indicates the interface index for the Ethernet or MLT interface.
TYPE	Indicates the type of interface configured (only pt-pt is supported).
LEVEL	Indicates the level of the IS-IS interface (Level 1 [default] or Level 2).
OPER STATE	Shows the physical connection state of the interface.
ADM STATE	Shows the configured state of the interface.
ADJ	Shows how many adjacencies are learned through the interface.
UP ADJ	Shows how many adjacencies are active through the interface.

Parameter	Description
ADM-SPBM L1-METRIC	Indicates the configured IS-IS interface Level 1 metric.
OPER-SPBM L1–METRIC	Indicates the operational IS-IS interface Level 1 metric.
ORIGIN	Indicates the origin of the IS-IS circuit configuration on the port, either manually configured through CLI or EDM, or dynamically configured through Auto-sense.
AREA	Indicates the type of area as home or remote.
AREA-NAME	Indicates the name of the area.
PORT MEMBERS	Displays the members of an MLT. This information only displays if you use the *verbose* parameter.

Example

The **show isis interface** command with the *verbose* parameter displays IS-IS interface configuration, status parameters, and MLT port members.

```
Switch:1>show isis interface verbose
================================================================================================================================
                                ISIS Interfaces
================================================================================================================================
INTERFACE TYPE  LEVEL    OPER    ADM     ADJ    UP      ADM-SPBM     OPER-SPBM   ORIGIN   AREA  AREA-NAME      PORT
                         STATE   STATE           ADJ     L1-METRIC    L1-METRIC                                 MEMBERS
--------------------------------------------------------------------------------------------------------------------------------
Mlt2     pt-pt  Level 1    UP    UP         1    1       10        (A) 10        CONFIG   HOME  area-9.00.02   1/16, 1/21
Port1/21 pt-pt  Level 1    UP    UP         1    1       10        (A) 10        CONFIG   HOME  area-9.00.02
--------------------------------------------------------------------------------------------------------------------------------
Home: 2 out of 2 Total Num of ISIS Interfaces
```

show isis int-l1-cntl-pkts

Display Intermediate-System-to-Intermediate-System (IS-IS) Level 1 control packet counters.

Syntax

- **show isis int-l1-cntl-pkts**
- **show isis int-l1-cntl-pkts [home|remote]**

Command Parameters

home

Displays the IS-IS L1 control packet counters that the system configures in the home area.

remote

Displays the IS-IS L1 control packet counters that the system configures in the remote area.

Default

None

Command Mode

User EXEC

Command Output

The **show isis int-l1-cntl-pkts** command displays the following information:

Parameter	Description
IFIDX	Shows the interface index for the Ethernet or MLT interface.
DIRECTION	Shows the packet flow (Transmitted or Received).
HELLO	Shows the amount of interface-level Hello packets.
LSP	Shows the amount of LSP packets.
CSNP	Shows the amount of CSNPs.
PSNP	Shows the amount of PSNPs.
AREA	Indicates the type of area as home or remote.
AREA-NAME	Indicates the name of the area.

Example

```
Switch:1>show isis int-l1-cntl-pkts
================================================================================================
                        ISIS L1 Control Packet counters
================================================================================================
IFIDX      DIRECTION       HELLO        LSP      CSNP          PSNP   AREA   AREA-NAME
------------------------------------------------------------------------------------------------
Mlt2        Transmitted    13346        231        2           229   HOME   area-9.00.02
Mlt2        Received       13329        230        1           230   HOME   area-9.00.02
Port1/21    Transmitted    13340        227        2           226   HOME   area-9.00.02
Port1/21    Received       13335        226        1           227   HOME   area-9.00.02
```

show isis int-l2-cntl-pkts

Display Intermediate-System-to-Intermediate-System (IS-IS) Level 2 control packet counters.

Syntax

- **show isis int-l2-cntl-pkts**

Default

None

Command Mode

User EXEC

show isis int-timers

Display Intermediate-System-to-Intermediate-System (IS-IS) interface timers.

Syntax

- **show isis int-timers**
- **show isis int-timers [home|remote]**

Command Parameters

home

Displays the IS-IS interface timer information that the system configures in the home area.

remote

Displays the IS-IS interface timer information that the system configures in the remote area.

Default

None

Command Mode

User EXEC

Command Output

The **show isis int-timers** command displays the following information:

Parameter	Description
IFIDX	Indicates the interface index for the Ethernet or MLT interface.
LEVEL	Indicates the IS-IS interface level.
HELLO INTERVAL	Indicates the interval at which a Hello packet is sent to the IS-IS network.
HELLO MULTIPLIER	Indicates the multiplier that is used in conjunction with the Hello Interval.
HELLO DR	Indicates the interval at which a Hello packet is sent to the IS-IS network if the router is a designated router (DIS).

Parameter	Description
AREA	Indicates the type of area as home or remote.
AREA-NAME	Indicates the name of the area.

Example

```
Switch:1>show isis int-timers home
================================================================================
                             ISIS Interface Timers
================================================================================
IFIDX        LEVEL      HELLO         HELLO         HELLO   AREA   AREA-NAME
                        INTERVAL      MULTIPLIER    DR
--------------------------------------------------------------------------------
Mlt2         Level 1        9          3             3     HOME    area-9.00.02
Port1/21     Level 1        9          3             3     HOME    area-9.00.02
```

show isis logical-interface

Display IS-IS logical interfaces.

Syntax

- **show isis logical-interface [name]**

Command Parameters

name

Displays IS-IS logical interface name.

Default

None.

Command Mode

User EXEC

Command Output

The **show isis logical-interface** command displays the following information:

Output field	Description
IFIDX	Displays an index value for this logical interface.
NAME	Displays the name of this logical interface. **Note:** If you do not assign a name when you configure virtual NNI links for Multi-Area boundary nodes on 7520 Series and 7720 Series, the system autogenerates the name and displays the name as `Virtual-link-x`, where `x` is the loopback interface ID.
ENCAP TYPE	Displays whether the encapsulation type for the logical interface is Layer 2 (L2–P2P-VID) or Layer 3 (IP).
L2_INFO PORT/MLT	Displays the port or MLT that the logical interface is connected to in an Layer 2 network.
VIDS (PRIMARY)	Displays the list of VLANs that are associated with this Layer 2 logical interface.
TUNNEL DEST-IP	Displays the destination IP address for the logical interface.
L3_TUNNEL_NEXT_HOP_INFO PORT/MLT	Displays the outgoing interface (port or MLT) for VXLAN traffic.
L3_TUNNEL_NEXT_HOP_INFO VLAN	Displays the outgoing VLAN interface for VXLAN traffic.
L3_TUNNEL_NEXT_HOP_INFO VRF	Displays the name of the VRF that this Layer 3 logical interface is configured on.
BFD STATUS	Displays the status of BFD on this logical interface. The status can be enabled or disabled.
TUNNEL SRC-IP	Displays the source IP address for a Fabric Extend tunnel or a loopback interface.
ORIGIN	Displays the origin of the IS-IS logical interface configuration. For example, Zero Touch Fabric Configuration (ZTF) or manual configuration (config) through CLI or EDM.
ISIS MTU	Displays the Maximum Transmission Unit (MTU) size in bytes for IS-IS packets that use this logical interface. FE-IP deployments only.
SDWAN OPER STATE	Displays the one of the following states of the SD-WAN tunnel: • N/A (undefined) • UP • DOWN

Examples

Example of a Layer 2 Core (FE-VID):

```
Switch:1>show isis logical-interface
================================================================================================================================
                                          ISIS Logical Interfaces
================================================================================================================================
IFIDX NAME     ENCAP      L2_INFO      VIDS      TUNNEL   L3_TUNNEL_NEXT_HOP_INFO  BFD      TUNNEL   ORIGIN  ISIS  SDWAN
               TYPE       PORT/MLT   (PRIMARY)   DEST-IP  PORT/MLT   VLAN   VRF    STATUS   SRC-IP           MTU   OPER STATE
--------------------------------------------------------------------------------------------------------------------------------
1     SD-WAN-1 IP          --         --          192.0.2.3 Port1/44  4047   sd-wan disabled 192.0.2.1 ZTF    1400  UP
2     --       L2-P2P-VID  Port2/1    101,201(101)    --       --        --     --    disabled   --      config       N/A
3     --       L2-P2P-VID  Port1/3    102,202(102)    --       --        --     --    disabled   --      config       N/A
--------------------------------------------------------------------------------------------------------------------------------
3 out of 3 Total Num of Logical ISIS interfaces
--------------------------------------------------------------------------------------------------------------------------------
```

Example of a Layer 3 Core (FE-IP):

```
Switch:1>show isis logical-interface
================================================================================================================================
                                          ISIS Logical Interfaces
================================================================================================================================
IFIDX NAME       ENCAP L2_INFO  VIDS      TUNNEL   L3_TUNNEL_NEXT_HOP_INFO           BFD       TUNNEL    ORIGIN  ISIS  SDWAN
                 TYPE  PORT/MLT (PRIMARY) DEST-IP  PORT/MLT      VLAN    VRF         STATUS    SRC-IP            MTU   OPER STATE
--------------------------------------------------------------------------------------------------------------------------------
1 SD-WAN-1       IP    --       --        192.0.2.3    Port1/44    4047   sd-wan      disabled  192.0.2.1  ZTF     1400  UP
2 SPBoIP_T1      IP    --       --        192.0.2.15   Port1/25    500    vrf23       disabled  192.0.2.16 CONFIG  1000  N/A
3 SPBoIP_T2      IP    --       --        192.0.2.224  MLT10       2      vrf24       disabled  192.0.2.22 CONFIG  1600  N/A
4 Virtual-link-4 IP    --       --        4.4.4.4      PortRX-NNI  4051   GlobalRouter disabled 2.2.2.2    CONFIG  1600  N/A
5 Virtual-link-5 IP    --       --        5.5.5.5      Null        0      GlobalRouter disabled 2.2.2.2    CONFIG  1600  N/A
--------------------------------------------------------------------------------------------------------------------------------
5 out of 5 Total Num of Logical ISIS interfaces
--------------------------------------------------------------------------------------------------------------------------------
```

The command **`show isis logical-interface`** truncates the IS-IS logical interface name to the first 16 characters. To view the entire name (up to a maximum of 64 characters), use the command **`show isis logical-interface name`**.

```
Switch:1>show isis logical-interface name
============================================================
              ISIS Logical Interface name
============================================================
ID     NAME

------------------------------------------------------------
1      SD-WAN-1
2      SPBoIP_T1
3      SPBoIP_T2
4      Virtual-link-4
5      Virtual-link-5
------------------------------------------------------------
4 out of 4 Total Num of Logical ISIS interfaces
------------------------------------------------------------
```

show isis lsdb

Display the Intermediate-System-to-Intermediate-System (IS-IS) Link State Database (LSDB).

Syntax

- **show isis lsdb [detail] [home] [local] [lspid xxxx.xxxx.xxxx.xx-xx] [remote] [sysid <xxxx.xxxx.xxxx>]**
- **show isis lsdb ip-unicast [i-sid <0-16777215>] [lspid xxxx.xxxx.xxxx.xx-xx] [sysid xxxx.xxxx.xxxx] [home|remote]**
- **show isis lsdb ipv6-unicast [i-sid <0-16777215>] [lspid xxxx.xxxx.xxxx.xx-xx] [sysid xxxx.xxxx.xxxx] [home|remote]**
- **show isis lsdb [level {l1|l2|l12}] [sysid <xxxx.xxxx.xxxx>] [lspid <xxxx.xxxx.xxxx.xx-xx>] [tlv <1-236>] [detail] [home|remote]**
- **show isis lsdb tlv <1-236> sub-tlv <1-3>**

Command Parameters

detail

Displays detailed information, which includes the Link State Packet (LSP) ID, the level of the external router, the maximum age of the LSP, the LSP sequence number and the LSP checksum.

home

Displays the IS-IS link state database information that the system configures in the home area.

ip-unicast

Displays the link state database for IP unicast.

ipv6-unicast

Displays the link state database for IPv6 unicast.

i-sid <0-16777215>

Specifies the i-sid value to filter by.

level { l1 | l2 | l12 }

Displays the link state database for the specified level: l1 (Level 1), l2 (Level 2), or l12 (Level 1 and 2). The switch is a Level 1 router, which means it has only Level 1 links and can route within only one area. Level 1 routers route only within their assigned area and cannot route outside that area. Level 2 routers route between areas and toward other domains. Level 1/Level 2 routers route within an assigned area and between areas. Level 1/Level 2 routers maintain both a Level 1 link state database and a Level 2 Link State database.

local

Displays information on the local link state database.

lspid xxxx.xxxx.xxxx.xx-xx - 8 bytes

Displays the link state database for the specified Link State Packet (LSP) ID. The LSP ID is assigned to external IS-IS routing devices.

remote

Displays the IS-IS link state database information that the system configures in the remote area.

sub-tlv <1-3>

Displays the link state database for a specified sub-Type-Length-Value (TLV). Shortest Path Bridging MAC (SPBM) employs Intermediate-System-to-Intermediate-System (IS-IS) as the interior gateway protocol and implements additional TLVs to support additional functionality. TLVs exist inside IS-IS packets and Sub-TLVs exist as additional information in TLVs.

sysid xxxx.xxxx.xxxx - 6 bytes

Displays the link state database for the specified system ID.

sysid xxxx.xxxx.xxxx - 6 bytes

Displays the link state database for a specified sub-Type-Length-Value (TLV). Shortest Path Bridging MAC (SPBM) employs Intermediate-System-to-Intermediate-System (IS-IS) as the interior gateway protocol and implements additional TLVs to support additional functionality. TLVs exist inside IS-IS packets and Sub-TLVs exist as additional information in TLVs.

tlv <1-236>

Displays the link state database for a specified Type-Length-Value (TLV). Shortest Path Bridging MAC (SPBM) employs Intermediate-System-to-Intermediate-System (IS-IS) as the interior gateway protocol and implements additional TLVs to support additional functionality. TLVs exist inside IS-IS packets and give additional information.

Default

None

Command Mode

User EXEC

Command Output

The **`show isis lsdb`** command displays the following information:

Parameter	Description
LSP ID	Indicates the LSP ID assigned to external IS-IS routing devices.
LEVEL	Indicates the level of the external router: l1, l2, or l12.
LIFETIME	Indicates the maximum age of the LSP. If the max-lsp-gen-interval is set to 900 (default) then the lifetime value begins to count down from 1200 seconds and updates after 300 seconds if connectivity remains. If the timer counts down to zero, the counter adds on an additional 60 seconds, then the LSP for that router is lost. This happens because of the zero age lifetime, which is detailed in the RFC standards.
SEQNUM	Indicates the LSP sequence number. This number changes each time the LSP is updated.

Parameter	Description
CHKSUM	Indicates the LSP checksum. This is an error checking mechanism used to verify the validity of the IP packet.
HOST-NAME	Indicates the host name listed in the LSP. If the host name is not configured, then the system name is displayed.
AREA	Indicates the type of area as home or remote.

The **show isis lsdb** command with optional *ip-unicast* parameter displays the following information:

Parameter	Description
I-SID	Displays the I-SID.
ADDRESS	Displays the IP address.
PREFIX LENGTH	Displays the prefix length.
METRIC	Displays the metric value.
METRIC TYPE	Displays the metric type.
TLV TYPE	Displays the TLV type.
LSP FRAG	Displays the LSP fragment ID.
HOST NAME	Displays the host name listed in the LSP. If the host name is not configured, then the system name is displayed.
AREA	Displays the type of area as home or remote.
ROUTE-TAG	Displays the configured route tag. **Note:** This information also displays if you use the optional *detail* parameter for TLV 135 or 184, for example, **show isis lsdb tlv 135 detail**.

Examples

The **show isis lsdb** command, used without optional parameters, displays general information about the LSDB.

```
Switch:1>show isis lsdb
================================================================================================
                                    ISIS LSDB
================================================================================================
LSP ID                  LEVEL  LIFETIME  SEQNUM  CHKSUM   HOST-NAME      AREA
------------------------------------------------------------------------------------------------
0014.c7e1.33df.00-00     1      545       0xb1    0xed28   NewYork        HOME
0016.ca23.73df.00-00     1      1119      0x9f    0x9c9d   Switch-Lab2    HOME
0018.b0bb.b3df.00-00     1      708       0xb9    0xcb1a   Switch-Lab1    HOME

------------------------------------------------------------------------------------------------
Level-1 HOME AREA: 3 out of 3 Total Num of LSP Entries
Level-1 REMOTE AREA: 0 out of 3 Total Num of LSP Entries
Level-2 HOME AREA: 0 out of 0 Total Num of LSP Entries
```

```
Level-2 REMOTE AREA: 0 out of 3 Total Num of LSP Entries
```

The show isis lsdb ip-unicast command displays IPv4 unicast specific information.

```
Switch:1>show isis lsdb ip-unicast
================================================================================================================
                                        ISIS IP-UNICAST-ROUTE SUMMARY
================================================================================================================
                           PREFIX          METRIC    TLV   LSP   HOST
I-SID     ADDRESS          LENGTH  METRIC  TYPE      TYPE  FRAG  NAME              AREA       ROUTE-TAG
----------------------------------------------------------------------------------------------------------------
-         103.101.88.0     24      1       Internal  135   0x2   vn-area-20.0020   HOME       0
-         44.44.44.44      32      1       Internal  135   0x2   vn-area-20.0020   HOME       0
-         23.0.0.0         24      1       Internal  135   0x2   vn-area-20.0020   HOME       0
-         88.88.88.88      32      1       Internal  135   0x2   vn-area-20.0020   HOME       0
-         188.88.88.88     32      1       Internal  135   0x2   vn-area-20.0020   HOME       0
-         102.101.66.0     24      1       Internal  135   0x2   vn-area-20.0020   HOME       0
-         102.102.66.0     24      1       Internal  135   0x2   vn-area-20.0020   HOME       0
-         102.103.66.0     24      1       Internal  135   0x2   vn-area-20.0020   HOME       0
-         102.104.66.0     24      1       Internal  135   0x2   vn-area-20.0020   HOME       0
-         102.105.66.0     24      1       Internal  135   0x2   vn-area-20.0020   HOME       0
-         104.101.6.0      24      1       Internal  135   0x2   vn-area-20.0020   HOME       0
-         102.100.77.0     24      1       Internal  135   0x2   vn-area-20.0020   HOME       0
-         102.101.77.0     24      1       Internal  135   0x2   vn-area-20.0020   HOME       0

--More-- (q = quit)
```

show isis manual-area

Display Intermediate-System-to-Intermediate-System (IS-IS) areas.

Syntax

- **show isis manual-area**

Default

None

Command Mode

User EXEC

Command Output

The **show isis manual-area** command displays the following information:

Output field	Description
AREA ADDRESS	Shows the manual areas defined. There can only be one area. Use the same manual area across the entire SPBM cloud. The manual area can be from 1-13 bytes in length.

show isis multi-area dvr redistribute

Displays the IS-IS Multi-area SPB Distributed Virtual Routing (DvR) redistribution configuration on the switch.

Syntax

- **show isis multi-area dvr redistribute**

Default

The default is none.

Command Mode

User EXEC

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

Command Output

The **show isis multi-area dvr redistribute** command displays the following information:

Parameter	Description
ADMIN STATE	Indicates the administrative state of Multi-area SPB DvR redistribution.

Example

Displaying the IS-IS Multi-area SPB DvR redistribution configuration on the switch.

```
Switch:1>show isis multi-area dvr redistribute
================================================================================
                          MULTI-AREA DVR REDISTRIBUTE
================================================================================
Admin State
--------------------------------------------------------------------------------
Enabled
--------------------------------------------------------------------------------
```

show isis multi-area ip redistribute home-to-remote

Displays the IS-IS Multi-area SPB IPv4 home to remote redistribution configuration on the switch.

Syntax

- **show isis multi-area ip redistribute home-to-remote**
- **show isis multi-area ip redistribute home-to-remote vrf WORD<1-16>**
- **show isis multi-area ip redistribute home-to-remote vrfids WORD<0-512>**

Command Parameters

vrf WORD<1-16>

Specifies the Virtual Router Forwarding (VRF) name.

vrfids WORD<0-512>

Specifies a range of VRF IDs as text from range 0 to 512 characters in length.

Default

The default is none.

Command Mode

User EXEC

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

Command Output

The **show isis multi-area ip redistribute home-to-remote** command displays the following information:

Parameter	Description
DIRECTION	Indicates the direction of the redistribution policy.
ENABLE	Indicates if the redistribution policy is enabled on the switch.
RPOLICY	Indicates the route policy for IS-IS Multi-area SPB IPv4 home to remote redistribution.

Example

Displaying the IS-IS Multi-area SPB IPv4 home to remote redistribution on the switch:

```
Switch:1>show isis multi-area ip redistribute home-to-remote
================================================================================
         ISIS Multiarea Redistribute List for ip unicast - GlobalRouter
================================================================================
DIRECTION            ENABLE     RPOLICY
--------------------------------------------------------------------------------
home-to-remote       TRUE
```

```
================================================================================
      ISIS Multiarea Redistribute List for routed multicast - GlobalRouter
================================================================================
DIRECTION            ENABLE     RPOLICY
--------------------------------------------------------------------------------
home-to-remote       TRUE

================================================================================
         MULTI-AREA IP REDISTRIBUTE STATIC ISID ROUTED MULTICAST
================================================================================
DIRECTION            ENABLE     ISID LIST
--------------------------------------------------------------------------------
home-to-remote       TRUE        list1
--------------------------------------------------------------------------------
```

show isis multi-area ip redistribute remote-to-home

Displays the IS-IS Multi-area SPB IPv4 remote to home redistribution configuration on the switch.

Syntax

- **show isis multi-area ip redistribute remote-to-home**
- **show isis multi-area ip redistribute remote-to-home vrf WORD<1-16>**
- **show isis multi-area ip redistribute remote-to-home vrfids WORD<0-512>**

Command Parameters

vrf WORD<1-16>

Specifies the Virtual Router Forwarding (VRF) name.

vrfids WORD<0-512>

Specifies a range of VRF IDs as text from range 0 to 512 characters in length.

Default

The default is none.

Command Mode

User EXEC

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

Command Output

The **show isis multi-area ip redistribute remote-to-home** command displays the following information:

Parameter	Description
DIRECTION	Indicates the direction of the redistribution policy.
ENABLE	Indicates if the redistribution policy is enabled on the switch.
RPOLICY	Indicates the route policy for IS-IS Multi-area SPB IPv4 remote to home redistribution.

Example

Displaying the IS-IS Multi-area SPB IPv4 remote to home redistribution on the switch:

```
Switch:1>show isis multi-area ip redistribute remote-to-home
================================================================================
         ISIS Multiarea Redistribute List for ip unicast - GlobalRouter
================================================================================
DIRECTION            ENABLE     RPOLICY
--------------------------------------------------------------------------------
remote-to-home       TRUE

================================================================================
      ISIS Multiarea Redistribute List for routed multicast - GlobalRouter
================================================================================
DIRECTION            ENABLE     RPOLICY
--------------------------------------------------------------------------------
remote-to-home       TRUE
================================================================================
         MULTI-AREA IP REDISTRIBUTE STATIC ISID ROUTED MULTICAST
================================================================================
DIRECTION            ENABLE     ISID LIST
--------------------------------------------------------------------------------
remote-to-home       TRUE        list2
--------------------------------------------------------------------------------
```

show isis multi-area ip redistribute routed-multicast

Displays the IS-IS Multi-area SPB IPv4 routed multicast redistribution configuration on the switch.

Syntax

- **show isis multi-area ip redistribute routed-multicast**
- **show isis multi-area ip redistribute routed-multicast home-to-remote**
- **show isis multi-area ip redistribute routed-multicast home-to-remote vrf WORD<1-16>**
- **show isis multi-area ip redistribute routed-multicast home-to-remote vrfids WORD<0-512>**
- **show isis multi-area ip redistribute routed-multicast remote-to-home**

- **show isis multi-area ip redistribute routed-multicast remote-to-home vrf WORD<1-16>**
- **show isis multi-area ip redistribute routed-multicast remote-to-home vrfids WORD<0-512>**
- **show isis multi-area ip redistribute routed-multicast vrf WORD<1-16>**
- **show isis multi-area ip redistribute routed-multicast vrfids WORD<0-512>**

Command Parameters

home-to-remote

Specifies the home to remote redistribution.

remote-to-home

Specifies the remote to home redistribution.

vrf WORD<1-16>

Specifies the Virtual Router Forwarding (VRF) name.

vrfids WORD<0-512>

Specifies a range of VRF IDs as text from range 0 to 512 characters in length.

Default

The default is none.

Command Mode

User EXEC

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

Command Output

The **show isis multi-area ip redistribute routed-multicast** command displays the following information:

Parameter	Description
DIRECTION	Indicates the direction of the redistribution policy.
ENABLE	Indicates if the redistribution policy is enabled on the switch.
RPOLICY	Indicates the route policy for IS-IS Multi-area SPB routed multicast redistribution.

Example

Displaying the IS-IS Multi-area SPB IPv4 routed multicast redistribution configuration on the switch:

```
Switch:1>show isis multi-area ip redistribute routed-multicast
================================================================================
      ISIS Multiarea Redistribute List for routed multicast - GlobalRouter
================================================================================
DIRECTION            ENABLE     RPOLICY
--------------------------------------------------------------------------------
home-to-remote       TRUE
remote-to-home       TRUE
```

show isis multi-area ip redistribute static-isid-routed-multicast

Displays the Intermediate-System-to-Intermediate-System (IS-IS) Multi-area SPB IPv4 static I-SID routed multicast redistribution configuration on the switch.

Syntax

- **show isis multi-area ip redistribute static-isid-routed-multicast**
- **show isis multi-area ip redistribute static-isid-routed-multicast home-to-remote**
- **show isis multi-area ip redistribute static-isid-routed-multicast remote-to-home**

Command Parameters

home-to-remote

Specifies the home to remote redistribution.

remote-to-home

Specifies the remote to home redistribution.

Default

None

Command Mode

User EXEC

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

Command Output

The **show isis multi-area ip redistribute static-isid-routed-multicast** command displays the following information:

Output field	Description
DIRECTION	Indicates the direction of the redistribution policy.
ENABLE	Indicates if the redistribution policy is enabled on the switch.
ISID LIST	Indicates the name of the I-SID list.

Example

The following example displays the IS-IS Multi-area SPB IPv4 static I-SID routed multicast redistribution configuration:

```
Switch:1>show isis multi-area ip redistribute static-isid-routed-multicast
================================================================================
       MULTI-AREA IP REDISTRIBUTE STATIC ISID ROUTED MULTICAST - ALL VRF
================================================================================
DIRECTION            ENABLE     ISID LIST
--------------------------------------------------------------------------------
home-to-remote        TRUE      list1
remote-to-home     FALSE     list2
```

show isis multi-area ip redistribute unicast

Displays the IS-IS Multi-area SPB IPv4 unicast redistribution configuration on the switch.

Syntax

- **show isis multi-area ip redistribute unicast**
- **show isis multi-area ip redistribute unicast**
- **show isis multi-area ip redistribute unicast home-to-remote vrf WORD<1-16>**
- **show isis multi-area ip redistribute unicast home-to-remote vrfids WORD<0-512>**
- **show isis multi-area ip redistribute unicast remote-to-home**
- **show isis multi-area ip redistribute unicast remote-to-home vrf WORD<1-16>**
- **show isis multi-area ip redistribute unicast remote-to-home vrfids WORD<0-512>**
- **show isis multi-area ip redistribute unicast vrf WORD<1-16>**
- **show isis multi-area ip redistribute unicast vrfids WORD<0-512>**

Command Parameters

home-to-remote

Specifies the home to remote redistribution.

remote-to-home

Specifies the remote to home redistribution.

vrf WORD<1-16>

Specifies the Virtual Router Forwarding (VRF) name.

vrfids WORD<0-512>

Specifies a range of VRF IDs as text from range 0 to 512 characters in length.

Default

The default is none.

Command Mode

User EXEC

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

Command Output

The **show isis multi-area ip redistribute unicast** command displays the following information:

Parameter	Description
DIRECTION	Indicates the direction of the redistribution policy.
ENABLE	Indicates if the redistribution policy is enabled on the switch.
RPOLICY	Indicates the route policy for IS-IS Multi-area SPB IPv4 unicast redistribution.
DELETE-TAGS	Indicates if the transmission of route tags in Multi-area SPB is disabled.

Example

Displaying the IS-IS Multi-area SPB IPv4 unicast redistribution on the switch:

```
Switch:1>show isis multi-area ip redistribute unicast
================================================================================
         ISIS Multiarea Redistribute List for ip unicast - GlobalRouter
================================================================================
DIRECTION            ENABLE     RPOLICY   DELETE-TAGS
--------------------------------------------------------------------------------
```

```
home-to-remote       TRUE                FALSE
remote-to-home       TRUE                FALSE
```

show isis multi-area ip redistribute vrf

Displays the IS-IS Multi-area SPB IPv4 redistribution configuration for a specific Virtual Router Forwarding (VRF) instance.

Syntax

- **show isis multi-area ip redistribute vrf WORD<1-16>**

Command Parameters

WORD<1-16>

Specifies the VRF name.

Default

The default is none.

Command Mode

User EXEC

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

Command Output

The **show isis multi-area ip redistribute vrf WORD<1-16>** command displays the following information:

Parameter	Description
DIRECTION	Indicates the direction of the redistribution policy.
ENABLE	Indicates if the redistribution policy is enabled on the switch.
RPOLICY	Indicates the route policy for IS-IS Multi-area SPB IPv4 unicast and routed multicast redistribution for a specific VRF.

Example

Displaying the IS-IS Multi-area SPB IPv4 redistribution configuration for the VRF instance:

```
Switch:1>show isis multi-area ip redistribute vrf VRF1
================================================================================
            ISIS Multiarea Redistribute List for ip unicast - VRF VRF1
================================================================================
DIRECTION            ENABLE     RPOLICY
--------------------------------------------------------------------------------
home-to-remote       FALSE

================================================================================
         ISIS Multiarea Redistribute List for routed multicast - VRF VRF1
================================================================================
DIRECTION            ENABLE     RPOLICY
--------------------------------------------------------------------------------
home-to-remote       TRUE       Test
================================================================================
         MULTI-AREA IP REDISTRIBUTE STATIC ISID ROUTED MULTICAST - ALL VRF
================================================================================
DIRECTION            ENABLE     ISID LIST
--------------------------------------------------------------------------------
home-to-remote        FALSE      list1
remote-to-home        TRUE       list2
--------------------------------------------------------------------------------
```

show isis multi-area ip redistribute vrfids

Displays the IS-IS Multi-area SPB IPv4 redistribution configuration for a specific Virtual Router Forwarding (VRF) ID.

Syntax

- **show isis multi-area ip redistribute vrfids WORD<0-512>**

Command Parameters

WORD<0-512>

Specifies the VRF ID.

Default

The default is none.

Command Mode

User EXEC

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

Command Output

The **show isis multi-area ip redistribute vrfids WORD<0-512>** command displays the following information:

Parameter	Description
DIRECTION	Indicates the direction of the redistribution policy.
ENABLE	Indicates if the redistribution policy is enabled on the switch.
RPOLICY	Indicates the route policy for IS-IS Multi-area SPB IPv4 unicast and routed multicast redistribution for a specific VRF ID.

Example

Displaying the IS-IS Multi-area SPB IPv4 redistribution configuration for the VRF ID:

```
Switch:1>show isis multi-area ip redistribute vrfids 2
================================================================================
        MULTI-AREA IP REDISTRIBUTE IP UNICAST - VRF multicast
================================================================================
DIRECTION            ENABLE     RPOLICY
--------------------------------------------------------------------------------
home-to-remote       TRUE       Test
================================================================================
     MULTI-AREA IP REDISTRIBUTE ROUTED MULTICAST - VRF multicast
================================================================================
DIRECTION            ENABLE     RPOLICY
--------------------------------------------------------------------------------
home-to-remote       TRUE       Test
================================================================================
         MULTI-AREA IP REDISTRIBUTE STATIC ISID ROUTED MULTICAST
================================================================================
DIRECTION            ENABLE     ISID LIST
--------------------------------------------------------------------------------
home-to-remote        FALSE      list1
remote-to-home        TRUE       list2
--------------------------------------------------------------------------------
```

show isis multi-area ipv6 redistribute home-to-remote

Displays the IS-IS Multi-area SPB IPv6 home to remote redistribution configuration on the switch.

Syntax

- **show isis multi-area ipv6 redistribute home-to-remote**
- **show isis multi-area ipv6 redistribute home-to-remote vrf WORD<1-16>**
- **show isis multi-area ipv6 redistribute home-to-remote vrfids WORD<0-512>**

Command Parameters

vrf WORD<1-16>

Specifies the Virtual Router Forwarding (VRF) name.

vrfids WORD<0-512>

Specifies a range of VRF IDs as text from range 0 to 512 characters in length.

Default

The default is none.

Command Mode

User EXEC

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

Command Output

The **show isis multi-area ipv6 redistribute home-to-remote** command displays the following information:

Parameter	Description
DIRECTION	Indicates the direction of the redistribution policy.
ENABLE	Indicates if the redistribution policy is enabled on the switch.
RPOLICY	Indicates the route policy for IS-IS Multi-area SPBIPv6 redistribution.

Example

Displaying the IS-IS Multi-area SPB IPv6 home to remote redistribution on the switch:

```
Switch:1>show isis multi-area ipv6 redistribute home-to-remote
================================================================================
         ISIS Multiarea Redistribute List for ipv6 unicast - GlobalRouter
================================================================================
DIRECTION            ENABLE     RPOLICY
--------------------------------------------------------------------------------
home-to-remote       TRUE
--------------------------------------------------------------------------------
```

show isis multi-area ipv6 redistribute remote-to-home

Displays the IS-IS Multi-area SPB IPv6 remote to home redistribution configuration on the switch.

Syntax

- **show isis multi-area ipv6 redistribute remote-to-home**
- **show isis multi-area ipv6 redistribute remote-to-home vrf WORD<1-16>**
- **show isis multi-area ipv6 redistribute remote-to-home vrfids WORD<0-512>**

Command Parameters

vrf WORD<1-16>

Specifies the Virtual Router Forwarding (VRF) name.

vrfids WORD<0-512>

Specifies a range of VRF IDs as text from range 0 to 512 characters in length.

Default

The default is none.

Command Mode

User EXEC

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

Command Output

The **show isis multi-area ipv6 redistribute remote-to-home** command displays the following information:

Parameter	Description
DIRECTION	Indicates the direction of the redistribution policy.
ENABLE	Indicates if the redistribution policy is enabled on the switch.
RPOLICY	Indicates the route policy for IS-IS Multi-area SPB IPv6 redistribution.

Example

Displaying the IS-IS Multi-area SPB IPv6 remote to home redistribution on the switch:

```
Switch:1>show isis multi-area ipv6 redistribute remote-to-home
================================================================================
         ISIS Multiarea Redistribute List for ipv6 unicast - GlobalRouter
================================================================================
DIRECTION            ENABLE     RPOLICY
```

```
-------------------------------------------------------------------------------
remote-to-home       TRUE
-------------------------------------------------------------------------------
```

show isis multi-area ipv6 redistribute unicast

Displays the IS-IS Multi-area SPB IPv6 unicast redistribution configuration on the switch.

Syntax

- **show isis multi-area ipv6 redistribute unicast**
- **show isis multi-area ipv6 redistribute unicast home-to-remote**
- **show isis multi-area ipv6 redistribute unicast home-to-remote vrf WORD<1-16>**
- **show isis multi-area ipv6 redistribute unicast home-to-remote vrfids WORD<0-512>**
- **show isis multi-area ipv6 redistribute unicast remote-to-home**
- **show isis multi-area ipv6 redistribute unicast remote-to-home vrf WORD<1-16>**
- **show isis multi-area ipv6 redistribute unicast remote-to-home vrfids WORD<0-512>**
- **show isis multi-area ipv6 redistribute unicast vrf WORD<1-16>**
- **show isis multi-area ipv6 redistribute unicast vrfids WORD<0-512>**

Command Parameters

home-to-remote

Specifies the home to remote redistribution.

remote-to-home

Specifies the remote to home redistribution.

vrf WORD<1-16>

Specifies the Virtual Router Forwarding (VRF) name.

vrfids WORD<0-512>

Specifies a range of VRF IDs as text from range 0 to 512 characters in length.

Default

The default is none.

Command Mode

User EXEC

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

Command Output

The **show isis multi-area ipv6 redistribute unicast** command displays the following information:

Parameter	Description
DIRECTION	Indicates the direction of the redistribution policy.
ENABLE	Indicates if the redistribution policy is enabled on the switch.
RPOLICY	Indicates the route policy for IS-IS Multi-area SPBIPv6 unicast redistribution.

Example

Displaying the IS-IS Multi-area SPB IPv6 unicast redistribution on the switch:

```
Switch:1>show isis multi-area ipv6 redistribute unicast
================================================================================
        ISIS Multiarea Redistribute List for ipv6 unicast - GlobalRouter
================================================================================
DIRECTION            ENABLE     RPOLICY
--------------------------------------------------------------------------------
home-to-remote       TRUE       Test1
remote-to-home       TRUE       Test2
```

show isis multi-area ipv6 redistribute vrf

Displays the IS-IS Multi-area SPB IPv6 redistribution configuration for a specific Virtual Router Forwarding (VRF) instance.

Syntax

- **show isis multi-area ipv6 redistribute vrf WORD<1-16>**

Command Parameters

WORD<1-16>

Specifies the VRF name.

Default

The default is none.

Command Mode

User EXEC

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

Command Output

The **show isis multi-area ipv6 redistribute vrf WORD<1-16>** command displays the following information:

Parameter	Description
DIRECTION	Indicates the direction of the redistribution policy.
ENABLE	Indicates if the redistribution policy is enabled on the switch.
RPOLICY	Indicates the route policy for IS-IS Multi-area SPB IPv6 redistribution for a specific VRF.

Example

Displaying the IS-IS Multi-area SPB IPv6 redistribution configuration for the VRF instance:

```
Switch:1>show isis multi-area ipv6 redistribute vrf VRF1
================================================================================
           ISIS Multiarea Redistribute List for ipv6 unicast - VRF VRF1
================================================================================
DIRECTION            ENABLE     RPOLICY
--------------------------------------------------------------------------------
remote-to-home       TRUE       Test
```

show isis multi-area ipv6 redistribute vrfids

Displays the IS-IS Multi-area SPB IPv6 redistribution configuration for a specific Virtual Router Forwarding (VRF) ID.

Syntax

- **show isis multi-area ipv6 redistribute vrfids WORD<0-512>**

Command Parameters

WORD<0-512>

Specifies the VRF ID.

Default

The default is none.

Command Mode

User EXEC

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

Command Output

The **show isis multi-area ipv6 redistribute vrfids WORD<0-512>** command displays the following information:

Parameter	Description
DIRECTION	Indicates the direction of the redistribution policy.
ENABLE	Indicates if the redistribution policy is enabled on the switch.
RPOLICY	Indicates the route policy for IS-IS Multi-area SPB IPv6 redistribution for a specific VRF ID.

Displaying the IS-IS Multi-area SPB IPv6 redistribution configuration for the VRF ID:

```
Switch:1>show isis multi-area ipv6 redistribute vrfids 2
================================================================================
       MULTI-AREA IP REDISTRIBUTE IPv6 UNICAST - VRF multicast
================================================================================
DIRECTION            ENABLE     RPOLICY
--------------------------------------------------------------------------------
home-to-remote       TRUE       Test
```

show isis multi-area l2 isid-list

Displays the IS-IS Multi-area SPB layer 2 I-SID list information.

Syntax

- **show isis multi-area l2 isid-list**

Default

The default is none.

Command Mode

User EXEC

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

Command Output

The **show isis multi-area l2 isid-list** command displays the following information:

Parameter	Description
List Name	Indicates the name of the I-SID list.
I-SID / I-SID RANGE	Indicates the range of I-SID values in the I-SID list.

Displaying IS-IS Multi-area SPB layer 2 I-SID redistribution:

```
Switch:1>show isis multi-area l2 isid-list
================================================================================
                            MULTI AREA L2 ISID LIST
================================================================================
List Name                        I-SID / I-SID RANGE
--------------------------------------------------------------------------------
test                              50510  - 501512
All 1 out of 1 Total Num of Isid Lists displayed
```

show isis multi-area l2 redistribute i-sid

Displays the IS-IS Multi-area SPB layer 2 I-SID redistribution configuration on the switch.

Syntax

- **show isis multi-area l2 redistribute i-sid**

Default

The default is none.

Command Mode

User EXEC

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

Command Output

The **show isis multi-area l2 redistribute i-sid** command displays the following information:

Parameter	Description
Permit	Indicates the action mode for the specific range of I-SID values.
Except List Name	Indicates the name of the I-SID list.

Displaying the IS-IS Multi-area SPB layer 2 I-SID redistribution:

```
Switch:1>show isis multi-area l2 redistribute i-sid
================================================================================
                        MULTI AREA L2 ISID REDIST POLICY
================================================================================
Permit               Except List Name
--------------------------------------------------------------------------------
permit-all           testlist
```

show isis multi-area l2 redistribute snoop-multicast

Displays the IS-IS Multi-area SPB layer 2 multicast snooping redistribution configuration on the switch.

Syntax

- **show isis multi-area l2 redistribute snoop-multicast**

Default

The default is none.

Command Mode

User EXEC

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

Command Output

The **show isis multi-area l2 redistribute snoop-multicast** command displays the following information:

Parameter	Description
ISID	Indicates the I-SID value.
ISID LIST	Indicates the name of the I-SID list.
DIRECTION	Indicates the direction of the redistribution policy.
ENABLE	Indicates if the redistribution policy is enabled on the switch.
RPOLICY	Indicates the route policy for IS-IS Multi-area SPB layer 2 multicast snooping redistribution for a specific I-SID or I-SID list.

Displaying the IS-IS Multi-area SPB layer 2 multicast snooping configuration:

```
Switch:1>show isis multi-area l2 redistribute snoop-multicast
================================================================================
               MULTI-AREA L2 SNOOP MULTICAST REDISTRIBUTE BY ISID
================================================================================
ISID       DIRECTION            ENABLE     RPOLICY
--------------------------------------------------------------------------------
1100      home-to-remote        TRUE       test
================================================================================
            MULTI-AREA L2 SNOOP MULTICAST REDISTRIBUTE BY ISID LIST
================================================================================
ISID LIST           DIRECTION            ENABLE     RPOLICY
--------------------------------------------------------------------------------
List1               home-to-remote       TRUE       test
--------------------------------------------------------------------------------
```

show isis net

Display Intermediate-System-to-Intermediate-System (IS-IS) net information.

Syntax

- **show isis net**

Default

None

Command Mode

User EXEC

Command Output

The **show isis net** command displays the following information:

Output field	Description
NET	Shows the NET address. Output from this command is from the global IS-IS configuration of the manual area and the configuration of the system ID. There is only one manual areas defined and only one system ID. The manual area is from 1-13 bytes in length. The system ID is 6 bytes in length.

show isis remote

Displays IS-IS remote configuration on the switch.

Syntax

- **show isis remote**

Default

The default is none.

Command Mode

User EXEC

Command Output

The **show isis remote** command displays the following information:

Output field	Description
AdminState	Indicates the administrative state of the router.
System ID	Indicates the system ID.
Num of Interfaces	Indicates the number of interfaces on the router.
Num of Area Addresses	Indicates the number of area addresses on the router.
Dynamically Learned Area	For Fabric Area Network (FAN) members, specifies the IS-IS area that is dynamically learned from the neighbor's Hello PDU if the node does not have the IS-IS manual area configured.

Output field	Description
Multi-area OperState	Indicates the Multi-area SPB operational state as: • Disabled—Multi-area SPB is disabled on the switch. • Init—the switch is initializing to function as a boundary node. • Designated—the switch is operating as a designated boundary node. • Non-designated—the switch is operating as a non-designated boundary node.
Designated BN Hostname **Note:** Exception: only applies to 5520 Series, 5720 Series, 7520 Series, and 7720 Series.	Specifies the hostname of the designated boundary node.
Designated BN Home System ID **Note:** Exception: only applies to 5520 Series, 5720 Series, 7520 Series, and 7720 Series.	Specifies the system ID of the designated boundary node in the home area.
Designated BN Remote System ID **Note:** Exception: only applies to 5520 Series, 5720 Series, 7520 Series, and 7720 Series.	Specifies the system ID of the designated boundary node in the remote area.

Displaying IS-IS remote area configuration:

```
Switch:1>show isis remote
================================================================================================
                              ISIS Remote Area Info
================================================================================================
                             AdminState : enabled
                              System ID : 209e.f77e.2086
                     Num of Interfaces : 4
                Num of Area Addresses : 1
             Dynamically Learned Area : 49.0002
                 Multi-Area OperState : designated
                Designated BN Hostname: BN4435
          Designated BN Home System ID : 0010.7400.4435
        Designated BN Remote System ID : 0020.7400.4435
```

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

show isis spbm

Display IS-IS SPBM related information.

Syntax

- **show isis spbm**

Default

None

Command Mode

User EXEC

Command Output

The **show isis spbm** command displays the following information:

Output field	Description
SPBM INSTANCE	Displays the SPBM instance identifier. You can create only one SPBM instance.
B-VID	Displays the SPBM B-VLAN associated with the SPBM instance.
PRIMARY VLAN	Displays the primary SPBM B-VLAN.
NICK NAME	Displays the SPBM node nickname. The nickname is used to calculate the I-SID multicast MAC address.
LSDB TRAP	Displays the status of the IS-IS SPBM LSDB update trap on this SPBM instance. The default is disable.
IP	Displays the status of SPBM IP shortcuts on this SPBM instance. The default is disable.
IPv6	Displays the status of SPBM IPv6 shortcuts on this SPBM instance. The default is disable.
MULTICAST	Displays if SPBM multicast is enabled. The default is disabled.
SPB-PIM-GW	Displays if SPB PIM Gateway is enabled. The default is disabled.
STP-MULTI HOMING	Displays if MSTP-Fabric Connect Multi Homing is enabled. The default is disabled.

Output field	Description
ORIGIN	Displays the origin of the instance, either manually configured or dynamically configured through Auto-sense.
SMLT-SPLIT-BEB	Displays whether the switch is the primary or secondary vIST peer.
SMLT-VIRTUAL-BMAC	Displays a virtual MAC address that can be used by both peers.
SMLT-PEER-SYSTEM-ID	Displays the vIST peer system ID.
SMLT-PEER-NICK-NAME	Displays the vIST peer nickname.
SMLT-PEER-HOST-NAME	Displays the vIST peer host name.

Example

The following example displays the command output.

```
Switch:1>show isis spbm
================================================================================================================================
                                                    ISIS SPBM Info
================================================================================================================================
SPBM       B-VID      PRIMARY    NICK     LSDB     IP       IPV6     MULTICAST  SPB-PIM-GW         STP-MULTI  ORIGIN
INSTANCE              VLAN       NAME     TRAP                                                    HOMING
--------------------------------------------------------------------------------------------------------------------------------
1          4051-4052  4051       4.00.0a  disable  enable   enable   enable     N/A                disable    config

================================================================================================================
                                              ISIS SPBM SMLT Info
================================================================================================================
SPBM       SMLT-SPLIT-BEB       SMLT-VIRTUAL-BMAC    SMLT-PEER-SYSTEM-ID  SMLT-PEER-NICK-NAME  SMLT-PEER-HOST-NAME
INSTANCE
----------------------------------------------------------------------------------------------------------------
1          primary              00:00:00:00:00:00                         N/A                N/A

--------------------------------------------------------------------------------------------------------------------------------
 Total Num of SPBM instances: 1
--------------------------------------------------------------------------------------------------------------------------------
```

show isis spbm ip-multicast-fib

Display the Intermediate-System-to-Intermediate-System (IS-IS) Shortest Path Bridging MAC (SPBM) IP multicast Forwarding Information Database (FIB) entries. If you do not use an optional parameter, the command output shows entries for the GlobalRouter (GRT).

Syntax

- **show isis spbm ip-multicast-fib**

Default

None

Command Mode

User EXEC

show isis spbm ip-multicast-route

Displays IP multicast over Fabric Connect route information.

Syntax

- **show isis spbm ip-multicast-route**
- **show isis spbm ip-multicast-route all**
- **show isis spbm ip-multicast-route detail**

Command Parameters

all

Displays all route information.

detail

Displays detailed route information. Shows only for L3 context when vlan/vsn-isid options are not used.

group {A.B.C.D}

Displays the group IP address. Shows only for L3 context when vlan/vsn-isid options are not used.

vlan <2-4059>

Specifies the VLAN ID in the range of 2 to 4059. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1. By default, the system reserves VLAN IDs 4060 to 4094 for internal use. If you enable VRF scaling and SPBM mode, the system also reserves VLAN IDs 3500 to 3998.

vrf WORD<1-16>

Displays the ip-multicast-route by vrf.

vsn-isid

Displays the ip-multicast-route by vsn-isid.

Default

None

Command Mode

User EXEC

Command Output

The **show isis spbm ip-multicast-route** command displays the following information:

Output field	Description
Type	Specifies the type of interface. The options include: • routed— For IP Shortcuts and Layer 3 VSNs. • snoop— For Layer 2 VSNs.
VrfName	Specifies the VRF name of the interface.
Vlan Id	Specifies the VLAN ID of the interface.
Source	Specifies the group IP address for the IP Multicast over Fabric Connect route.
Group	Specifies the group IP address for the IP Multicast over Fabric Connect route.
VSN-ISID	Specifies the VSN I-SID for Layer 2 VSNs and Layer 3 VSNs. Specifies the GRT for IP Shortcuts with IP Multicast over Fabric Connect because IP Shortcuts IP Multicast over Fabric Connect does not use a VSN I-SID.
Data ISID	Specifies the data I-SID for the IP Multicast over Fabric Connect route. After a BEB receives IP multicast data from a sender, the BEB allocates a data I-SID in the range of 16,000,000 to 16,512,000 for the stream. The stream is identified by the source IP address, group IP address, and the local VLAN the stream is received on. The data I-SID is a child of the scope or VSN I-SID.
BVLAN	Specifies the B-VLAN for the IP Multicast over Fabric Connect route.
Source-BEB	Specifies the source BEB for the IP Multicast over Fabric Connect route.

show isis spbm ip-multicast-route group

Displays IP multicast route information by multicast group address.

Syntax

- **show isis spbm ip-multicast-route group {A.B.C.D}**
- **show isis spbm ip-multicast-route group {A.B.C.D} detail**
- **show isis spbm ip-multicast-route group {A.B.C.D} source {A.B.C.D}**
- **show isis spbm ip-multicast-route group {A.B.C.D} source {A.B.C.D} detail**
- **show isis spbm ip-multicast-route group {A.B.C.D} source {A.B.C.D} source-beb WORD<0-255>**
- **show isis spbm ip-multicast-route group {A.B.C.D} source {A.B.C.D} source-beb WORD<0-255> detail**

Command Parameters

{A.B.C.D}

Displays route information by multicast group address.

detail

Displays detailed route information.

source {A.B.C.D}

Displays information for the source IP address.

source-beb WORD<0-255>

Displays information for a specific backbone edge bridge.

Default

None

Command Mode

User EXEC

show isis spbm ip-multicast-route vlan

Displays IP multicast route information by VLAN.

Syntax

- **show isis spbm ip-multicast-route vlan <2-4059>**
- **show isis spbm ip-multicast-route vlan <2-4059> group {A.B.C.D}**
- **show isis spbm ip-multicast-route vlan <2-4059> group {A.B.C.D} detail**
- **show isis spbm ip-multicast-route vlan <2-4059> detail**
- **show isis spbm ip-multicast-route vlan <2-4059> detail**
- **show isis spbm ip-multicast-route vlan <2-4059> group {A.B.C.D}**
- **show isis spbm ip-multicast-route vlan <2-4059> group {A.B.C.D} detail**
- **show isis spbm ip-multicast-route vlan <2-4059> group {A.B.C.D} source {A.B.C.D}**
- **show isis spbm ip-multicast-route vlan <2-4059> group {A.B.C.D} source {A.B.C.D}**
- **show isis spbm ip-multicast-route vlan <2-4059> group {A.B.C.D} source {A.B.C.D} detail**
- **show isis spbm ip-multicast-route vlan <2-4059> group {A.B.C.D} source {A.B.C.D} source-beb WORD<0-255>**
- **show isis spbm ip-multicast-route vlan <2-4059> group {A.B.C.D} source {A.B.C.D} source-beb WORD<0-255>**

- **show isis spbm ip-multicast-route vlan <2-4059> group {A.B.C.D} source {A.B.C.D} source-beb WORD<0-255> detail**
- **show isis spbm ip-multicast-route vlan <2-4059> group {A.B.C.D} source {A.B.C.D} source-beb WORD<0-255> detail**
- **show isis spbm ip-multicast-route vlan<2-4059>**
- **show isis spbm ip-multicast-route vlan<2-4059> group {A.B.C.D} source {A.B.C.D} detail**

Command Parameters

<2-4059>

Specifies the VLAN ID in the range of 2 to 4059. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1. By default, the system reserves VLAN IDs 4060 to 4094 for internal use. If you enable VRF scaling and SPBM mode, the system also reserves VLAN IDs 3500 to 3998.

detail

Displays detailed route information.

group {A.B.C.D}

Specifies the multicast group address.

source {A.B.C.D}

Displays information for the source IP address.

source-beb WORD<0-255>

Displays information for a specific backbone edge bridge.

Default

None

Command Mode

User EXEC

show isis spbm ip-multicast-route vrf

Displays IP multicast route information by VRF.

Syntax

- **show isis spbm ip-multicast-route vrf WORD<1-16>**
- **show isis spbm ip-multicast-route vrf WORD<1-16> detail**
- **show isis spbm ip-multicast-route vrf WORD<1-16> group {A.B.C.D}**
- **show isis spbm ip-multicast-route vrf WORD<1-16> group {A.B.C.D} detail**

- **show isis spbm ip-multicast-route vrf WORD<1-16> group {A.B.C.D} source {A.B.C.D}**
- **show isis spbm ip-multicast-route vrf WORD<1-16> group {A.B.C.D} source {A.B.C.D} detail**
- **show isis spbm ip-multicast-route vrf WORD<1-16> group {A.B.C.D} source {A.B.C.D} source-beb WORD<1-255>**
- **show isis spbm ip-multicast-route vrf WORD<1-16> group {A.B.C.D} source {A.B.C.D} source-beb WORD<1-255> detail**

Command Parameters

detail

Displays detailed route information.

group {A.B.C.D}

Displays route information by multicast group address.

source {A.B.C.D}

Displays information for the source IP address.

source-beb WORD<0-255>

Displays information for a specific backbone edge bridge.

WORD<1-16>

Specifies the VRF name.

Default

None

Command Mode

User EXEC

show isis spbm ip-multicast-route vsn-isid

Displays IP multicast route information by VSN I-SID.

Syntax

- **show isis spbm ip-multicast-route vsn-isid <1-16777215>**
- **show isis spbm ip-multicast-route vsn-isid <1-16777215> detail**
- **show isis spbm ip-multicast-route vsn-isid <1-16777215> group {A.B.C.D}**
- **show isis spbm ip-multicast-route vsn-isid <1-16777215> group {A.B.C.D} detail**

- **show isis spbm ip-multicast-route vsn-isid <1-16777215> group {A.B.C.D} source {A.B.C.D}**
- **show isis spbm ip-multicast-route vsn-isid <1-16777215> group {A.B.C.D} source {A.B.C.D} detail**
- **show isis spbm ip-multicast-route vsn-isid <1-16777215> group {A.B.C.D} source {A.B.C.D} source-beb WORD<1-255>**
- **show isis spbm ip-multicast-route vsn-isid <1-16777215> group {A.B.C.D} source {A.B.C.D} source-beb WORD<1-255> detail**
- **show isis spbm ip-multicast-route vsn-isid <1-16777215>**
- **show isis spbm ip-multicast-route vsn-isid <1-16777215> detail**
- **show isis spbm ip-multicast-route vsn-isid <1-16777215> group {A.B.C.D}**
- **show isis spbm ip-multicast-route vsn-isid <1-16777215> group {A.B.C.D} detail**
- **show isis spbm ip-multicast-route vsn-isid <1-16777215> group {A.B.C.D} source {A.B.C.D}**
- **show isis spbm ip-multicast-route vsn-isid <1-16777215> group {A.B.C.D} source {A.B.C.D} detail**
- **show isis spbm ip-multicast-route vsn-isid <1-16777215> group {A.B.C.D} source {A.B.C.D} source-beb WORD<1-255>**
- **show isis spbm ip-multicast-route vsn-isid <1-16777215> group {A.B.C.D} source {A.B.C.D} source-beb WORD<1-255> detail**

Command Parameters

<1-16777215>

Specifies the VSN I-SID.

detail

Displays detailed route information.

detail

Displays detailed route information.

group {A.B.C.D}

Displays route information by multicast group address.

source {A.B.C.D}

Displays information for the source IP address.

source-beb WORD<0-255>

Displays information for a specific backbone edge bridge.

Default

None

Command Mode

User EXEC

Command Output

The **show isis spbm ip-multicast-route vsn-isid** command displays the following information:

Output field	Description
Source	Specifies the group IP address for the IP Multicast over Fabric Connect route.
Group	Specifies the group IP address for the IP Multicast over Fabric Connect route.
Data ISID	Specifies the data I-SID for the IP Multicast over Fabric Connect route. After a BEB receives the IP Multicast over Fabric Connect data from a sender, the BEB allocates a data I-SID in the range of 16,000,000 to 16,512,000 for the stream. The stream is identified by the source IP address, group IP address, and the local VLAN the stream is received on. The data I-SID is a child of the scope or VSN I-SID.
BVLAN	Specifies the B-VLAN for the IP Multicast over Fabric Connect route.
NNI Rcvrs	Specifies the network-to-network interface (NNI) receivers.
UNI Rcvrs	Specifies the UNI receivers.
Source-BEB	Specifies the source BEB for the IP Multicast over Fabric Connect route.

show isis spbm ip-unicast-fib

Displays the IS-IS SPBM IP unicast FIB.

Syntax

- **show isis spbm ip-unicast-fib [all] [id <1-16777215] [spbm-nh-as-mac] [home|remote]**

Command Parameters

all

Displays the IP unicast Forwarding Information Base (FIB) entries for all VRFs.

home

Displays the IS-IS SPBM IP unicast FIB information that the system configures in the home area.

id <1-16777215>

Displays the IP unicast Forwarding Information Base (FIB) for the given service instance identifier (I-SID) value.

remote

Displays the IS-IS SPBM IP unicast FIB information that the system configures in the remote area.

spbm-nh-as-mac

Displays the next hop Backbone MAC entry in the IP unicast Forwarding Information Base (FIB).

Default

None

Command Mode

User EXEC

Command Output

The **show isis spbm ip-unicast-fib** command displays the following information:

Parameter	Description
VRF	Specifies the VRF ID of the IP unicast FIB entry, 0 indicates NRE.
VRF ISID	Specifies the I-SID of the IP unicast FIB entry.
DEST ISID	Specifies the destination I-SID of the IP unicast FIB entry.
Destination	Specifies the destination IP address of the IP unicast FIB entry.
NH BEB	Specifies the next hop BMAC of the IP unicast FIB entry.
VLAN	Specifies the VLAN of the IP unicast FIB entry.
OUTGOING INTERFACE	Specifies the outgoing port of the IP unicast FIB.
SPBM COST	Specifies the BMAC cost of the IP unicast FIB entry.
PREFIX COST	Specifies the prefix cost of the IP unicast FIB entry.
PREFIX TYPE	Specifies the prefix type of the IP unicast FIB entry.
IP ROUTE PREFERENCE	Specifies the IP route preference of the IP unicast FIB entry.
AREA	Indicates the type of area as home or remote.
AREA-NAME	Indicates the name of the area.

Example

```
Switch:1>show isis spbm ip-unicast-fib

================================================================================================================================
                                    SPBM IP-UNICAST FIB ENTRY INFO
================================================================================================================================
     VRF  DEST                                  OUTGOING  SPBM   PREFIX  PREFIX    IP ROUTE
VRF  ISID ISID Destination      NH BEB  VLAN INTERFACE COST   COST    TYPE      PREFERENCE  AREA   AREA-NAME
--------------------------------------------------------------------------------------------------------------------------------
GRT    -    -  10.133.136.0/24  4K3(*)  4058 1/3       10     1       Internal  7           HOME   area-9.00.02
GRT    -    -  10.133.136.0/24  4K3(*)  4059 1/3       10     1       Internal  7           HOME   area-9.00.02
GRT    -    -  10.133.136.0/24  4K4(*)  4058 MLT-1     10000  1       Internal  7           HOME   area-9.00.02
```

```
GRT    -    -  10.133.136.0/24  4K4(*)  4059 MLT-1     10000  1       Internal  7          HOME   area-9.00.02
-------------------------------------------------------------------------------------------------------------------
 Home : Total number of SPBM IP-UNICAST FIB entries 4
 Remote: Total number of SPBM IP-UNICAST FIB entries 0
-------------------------------------------------------------------------------------------------------------------
```

show isis spbm ipv6-unicast-fib

Display the IPv6 Unicast FIB entries for GRT.

Syntax

- **show isis spbm ipv6-unicast-fib [all] [id <1–16777215] [spbm-nh-as-mac] [home|remote]**

Command Parameters

all

Displays the IPv6 unicast Forwarding Information Base (FIB) entries for all VRFs.

home

Displays the IS-IS SPBM IPv6 unicast FIB information that the system configures in the home area.

id <1-16777215>

Displays the IPv6 unicast Forwarding Information Base (FIB) for the given service instance identifier (I-SID) value.

remote

Displays the IS-IS SPBM IPv6 unicast FIB information that the system configures in the remote area.

spbm-nh-as-mac

Displays the next hop Backbone MAC entry in the IPv6 unicast Forwarding Information Base (FIB). If you use this option, the command output shows the BMAC address as the nexthop identifier rather than the remote host name.

Default

None

Command Mode

User EXEC

Command Output

The **show isis spbm ipv6-unicast-fib** command displays the following information:

Parameter	Dsecription
VRF	Specifies the VRF ID of the IPv6 unicast FIB entry, 0 indicates NRE.
VRF ISID	Specifies the I-SID of the IPv6 unicast FIB entry.
DEST ISID	Specifies the destination I-SID of the IPv6 unicast FIB entry.
Destination	Specifies the destination IPv6 address of the IPv6 unicast FIB entry.
NH BEB	Specifies the next hop BMAC of the IPv6 unicast FIB entry.
VLAN	Specifies the VLAN of the IPv6 unicast FIB entry.
OUTGOING INTERFACE	Specifies the outgoing port of the IPv6 unicast FIB.
SPBM COST	Specifies the BMAC cost of the IPv6 unicast FIB entry.
PREFIX COST	Specifies the prefix cost of the IPv6 unicast FIB entry.
METRIC TYPE	Specifies the metric type. Specifies an internal or a external metric. For internal metric type, the cost of the external routes is equal to the sum of all internal costs and the external cost. For external metric type, the cost of the external routes is equal to the external cost alone. The default is internal.
AREA	Indicates the type of area as home or remote.
AREA-NAME	Indicates the name of the area.

Example

```
Switch:1>show isis spbm ipv6-unicast-fib
================================================================================================================================
                              SPBM IPv6-UNICAST FIB ENTRY INFO
================================================================================================================================
       VRF    Dest                                    OUTGOING  SPBM  PREFIX METRIC    IP ROUTE
VRF    ISID   ISID   Destination         NH BEB  VLAN INTERFACE COST  COST   TYPE     PREFERENCE  AREA  AREA-NAME
--------------------------------------------------------------------------------------------------------------------------------
GRT    -      -      00:16:ca:23:73:df   el2     10   1/22     10     1     Internal  7           HOME  area-9.00.02
GRT    -      11     00:16:ca:23:73:df   esp     20   1/22     10     1     Internal  7           HOME  area-9.00.02
vrf1   11     100    00:18:b0:bb:b3:df   el2     10   1/22     10     1     External  7           HOME  area-9.00.02
vrf1   11     11     00:14:c7:e1:33:e0   ess     20   1/22     10     1     External  7           HOME  area-9.00.02

--------------------------------------------------------------------------------------------------------------------------------
 Home: Total number of SPBM IPv6-UNICAST FIB entries 4
 Remote: Total number of SPBM IPv6-UNICAST FIB entries 0
--------------------------------------------------------------------------------------------------------------------------------
```

show isis spbm i-sid

Display the Intermediate-System-to-Intermediate-System (IS-IS) Shortest Path Bridging MAC (SPBM) multicast Forwarding Information Base (FIB) calculation results by service instance identifier (I-SID).

Syntax

- **show isis spbm i-sid { all | config | discover }**
- **show isis spbm i-sid { all | config | discover } id <1-16777215>**
- **show isis spbm i-sid { all | config | discover } nick-name x.xx.xx - 2.5 bytes**
- **show isis spbm i-sid { all | config | discover } vlan <2-4059>**

Command Parameters

id <1-16777215>

Displays service instance identifier (I-SID) information for the specified I-SID.

nick-name x.xx.xx - 2.5 bytes

Displays service instance identifier (I-SID) information for the specified nickname.

vlan <2-4059>

Displays service instance identifier (I-SID) information for the specified Shortest Path Bridging MAC (SPBM) VLAN. Specifies the VLAN ID in the range of 2 to 4059. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1. By default, the system reserves VLAN IDs 4060 to 4094 for internal use. If you enable VRF scaling and SPBM mode, the system also reserves VLAN IDs 3500 to 3998.

Default

None

Command Mode

User EXEC

Command Output

The **show isis spbm i-sid** command displays the following information:

Output field	Description
ISID	Indicates the IS-IS SPBM I-SID identifier. • all: display all SPBM I-SID • discover: display discovered SPBM I-SID • config: display configured SPBM I-SID
SOURCE NAME	Indicates the nickname of the node where this I-SID was configured or discovered. **Note:** SOURCE NAME is equivalent to nickname.

Output field	Description
VLAN	Indicates the B-VLAN where this I-SID was configured or discovered.
SYSID	Indicates the system identifier.
TYPE	Indicates the SPBM I-SID type as either configured or discovered.
HOST_NAME	Indicates the host name of the multicast FIB entry.
ISID NAME	Indicates the global I-SID name to I-SID mapping.
AREA	Indicates the type of area as home or remote.
AREA NAME	Indicates the name of the area.

Example

The following example displays the command output.

```
Switch:1>show isis spbm i-sid all
================================================================================================================================================
                                                          SPBM ISID INFO
================================================================================================================================================
ISID      SOURCE NAME    VLAN   SYSID                TYPE         HOST_NAME            ISID NAME        AREA       AREA NAME
------------------------------------------------------------------------------------------------------------------------------------------------
101001    1.11.16        4051   0200.10ff.fff0       discover     area-0.00.10         ISID-101001      HOME       area-0.00.20
101003    1.11.16        4051   0200.10ff.fff0       discover     area-0.00.10         ISID-101003      HOME       area-0.00.20
101005    1.11.16        4051   0200.10ff.fff0       discover     area-0.00.10         ISID-101005      HOME       area-0.00.20
101007    1.11.16        4051   0200.10ff.fff0       discover     area-0.00.10         ISID-101007      HOME       area-0.00.20
101009    1.11.16        4051   0200.10ff.fff0       discover     area-0.00.10         ISID-101009      HOME       area-0.00.20
101011    1.11.16        4051   0200.10ff.fff0       discover     area-0.00.10         ISID-101011      HOME       area-0.00.20

------------------------------------------------------------------------------------------------------------------------------------------------
 Total number of SPBM ISID entries configed: 0
------------------------------------------------------------------------------------------------------------------------------------------------
 Total number of SPBM ISID entries discovered: 6
------------------------------------------------------------------------------------------------------------------------------------------------
 Total number of SPBM ISID entries: 6
------------------------------------------------------------------------------------------------------------------------------------------------
```

show isis spbm multicast

Displays the status of the global SPBM multicast configuration.

Syntax

- **show isis spbm multicast**

Default

None

Command Mode

User EXEC

Command Output

The **show isis spbm multicast** command displays the following information:

Output field	Description
multicast	Specifies whether multicast is enabled.
fwd-cache-timeout (seconds)	Specifies the forward cache timeout value in seconds.
routed-multicast-ttl1-bridging	Specifies whether routed multicast TTL1 bridging is enabled.

```
Switch:1>show isis spbm multicast

multicast : enable
fwd-cache-timeout(seconds) : 210
routed-multicast-ttl1-bridging : disable
```

show isis spbm multicast-fib

Display the Intermediate-System-to-Intermediate-System (IS-IS) Shortest Path Bridging MAC (SPBM) multicast Forwarding Information Database (FIB) entries.

Syntax

- **show isis spbm multicast-fib**
- **show isis spbm multicast-fib i-sid <1-16777215>**
- **show isis spbm multicast-fib nick-name x.xx.xx - 2.5 bytes**
- **show isis spbm multicast-fib summary**
- **show isis spbm multicast-fib vlan <2-4059>**

Command Parameters

i-sid <1-16777215>

Displays the FIB for the specified I-SID.

summary

Displays a summary of the FIB.

vlan <2-4059>

Specifies the VLAN ID in the range of 2 to 4059. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1. By default, the system reserves VLAN IDs 4060 to 4094 for internal use. If you enable VRF scaling and SPBM mode, the system also reserves VLAN IDs 3500 to 3998.

Default

None

Command Mode

User EXEC

Command Output

The **show isis spbm multicast-fib** command displays the following information:

Output field	Description
MCAST DA	Indicates the multicast destination MAC address of the multicast FIB entry.
ISID	Indicates the I-SID of the multicast FIB entry.
BVLAN	Indicates the B-VLAN of the multicast FIB entry.
SYSID	Indicates the system identifier of the multicast FIB entry.
HOST-NAME	Indicates the host name of the multicast FIB entry.
OUTGOING INTERFACE	Indicates the outgoing port of the multicast FIB entry.
INCOMING INTERFACE	Indicates the outgoing port of the multicast FIB entry.

show isis spbm nick-name

Display the Intermediate-System-to-Intermediate-System (IS-IS) Shortest Path Bridging MAC (SPBM) nickname entries.

Syntax

- **show isis spbm nick-name**
- **show isis spbm nick-name count**
- **show isis spbm nick-name nick-name**
- **show isis spbm nick-name smlt-virtual-bmac 0x00:0x00:0x00:0x00:0x00:0x00**
- **show isis spbm nick-name sysid**
- **show isis spbm nick-name [home|remote]**

Command Parameters

count

Specifies the total number of SPBM nickname entries.

home

Specifies the ISIS SPBM nickname information that the system configures in the home area.

nick-name

Specifies the ISIS SPBM nickname information.

remote

Specifies the ISIS SPBM nickname information that the system configures in the remote area.

smlt-virtual-bmac 0x00:0x00:0x00:0x00:0x00:0x00

Specifies the virtual MAC address. SMLT virtual BMAC is the optional configuration. If SMLT virtual BMAC is not configured, the system derives SMLT virtual BMAC from the configured SMLT peer system ID and the nodal MAC of the device (IS-IS system ID). The system compares the nodal MAC of the device with the SMLT peer system ID configured and takes the small one, plus 0x01, as the SMTL virtual BMAC. The system also derives SMLT split BEB from the SMLT peer system ID and nodal MAC of the device. Displays the SMLT(Split MultiLink Trunking) virtual entry for the specified Backbone MAC (BMAC).

sysid xxxx.xxxx.xxxx

Specifies isis system ID in xxxx.xxxx.xxxx - 6 bytes format.

Default

None

Command Mode

User EXEC

Command Output

The **show isis spbm nick-name** command displays the following information:

Parameter	Description
LSP ID	Indicates the 8 byte LSP ID, consisting of the SystemID, Circuit ID, and Fragment Number.
LIFETIME	Indicates the remaining lifetime in seconds for the LSP.
NICK-NAME	Indicates the nickname for the SPBM node.
VIRTUAL-BMAC	Indicates the virtual MAC address.
HOST-NAME	Indicates the hostname listed in the LSP, or the system name if the host name is not configured.
AREA	Indicates the type of area as home or remote.
AREA-NAME	Indicates the name of the area.

Example

```
Switch:1>show isis spbm nick-name
================================================================================================================
                                                ISIS SPBM NICK-NAME
================================================================================================================
LSP ID                  LIFETIME  NICK-NAME VIRTUAL-BMAC         HOST-NAME    AREA       AREA NAME
----------------------------------------------------------------------------------------------------------------
0011.0011.0011.00-00    743       4.22.33   00:00:00:00:00:00    BEB_A        HOME       area-9.00.02
```

```
0011.0013.0013.00-00    361       1.13.13   00:13:13:00:15:15    BEB_B        HOME       area-9.00.02
0011.0015.0015.00-00    395       1.16.17   00:13:13:00:15:15    BEB_C        HOME       area-9.00.02
0039.0039.0039.00-00    1088      0.01.39   00:00:00:00:00:00    BEB_D        HOME       area-9.00.02
0084.0084.0084.00-00    1080      0.84.77   00:00:00:00:00:00    BEB_E        HOME       area-9.00.02
8404.840c.8404.00-00    300       8.84.44   00:00:00:00:00:00    BEB_F        HOME       area-9.00.02
9200.01ff.fff0.00-00    1080      9.00.01   00:00:00:00:00:00    BEB_G        HOME       area-9.00.02
0001.0004.0005.00-00    1114      0.01.45   00:55:11:55:22:55    BEB_H        REMOTE     area-9.00.01
209e.f77e.2086.00-00    1080      0.84.78   00:00:00:00:00:00    BEB_I        REMOTE     area-9.00.01
5005.5005.5005.00-00    388       0.01.55   00:55:11:55:22:55    BEB_J        REMOTE     area-9.00.01
840c.8404.8404.00-00    631       8.84.04   00:00:00:00:00:00    BEB_K        REMOTE     area-9.00.01
9200.02ff.fff0.00-00    1080      9.00.02   00:00:00:00:00:00    BEB_L        REMOTE     area-9.00.01
f46e.959f.8c86.00-00    1088      0.01.40   00:00:00:00:00:00    BEB_M        REMOTE     area-9.00.01
-------------------------------------------------------------------------------------------------------------
Home:   7 out of 7 Total Num of Entries
Remote: 6 out of 6 Total Num of Entries
-------------------------------------------------------------------------------------------------------------
```

show isis spbm static-isid-ipmc-route

Displays the Intermediate-System-to-Intermediate-System (IS-IS) Shortest Path Bridging MAC (SPBM) static I-SID IP multicast route information.

Syntax

- **show isis spbm static-isid-ipmc-route**

Default

None

Command Mode

User EXEC

Command Output

The **show isis spbm static-isid-ipmc-route** command displays the following information:

Output field	Description
SOURCE	Specifies the source IP address for the IS-IS SPBM static IP multicast route.
GROUP	Specifies the group IP address for the IS-IS SPBM static IP multicast route.
DATAISID	Specifies the data I-SID for the static I-SID IP multicast route.
BVLAN	Specifies the B-VLAN for the SPBM static I-SID IP multicast route.
NNI RCVRS	Specifies the network-to-network interface (NNI) receivers.

Output field	Description
UNI RCVRS	Specifies the UNI receivers.
SOURCE-BEB	Specifies the source BEB for the SPBM static I-SID IP multicast route.

Example

The following example displays the SPBM static I-SID IP multicast route information.

```
Switch:1>show isis spbm static-isid-ipmc-route
================================================================================
             SPBM STATIC ISID IP-MULTICAST ROUTE INFO - GlobalRouter
================================================================================
Source          Group      Data ISID  BVLAN  NNI Rcvrs    UNI Rcvrs    Source-BEB
--------------------------------------------------------------------------------
192.0.2.10     224.1.1.3    210       4051   1/9            -          LOCAL
192.0.2.20     224.1.1.3    210       4051   1/9            -          LOCAL
192.0.2.30     224.1.1.3    210       4051   1/9            -          LOCAL
192.0.2.40     224.1.1.3    210         -     -          V10:1/19/1   NON-LOCAL

--------------------------------------------------------------------------------
Number of SPBM STATIC ISID IP-MULTICAST ROUTE entries displayed: 4
--------------------------------------------------------------------------------
```

show isis spbm static-isid-ipmc-route group

Displays the Intermediate-System-to-Intermediate-System (IS-IS) Shortest Path Bridging MAC (SPBM) static I-SID IP multicast route information by IP multicast group address.

Syntax

- **show isis spbm static-isid-ipmc-route group {A.B.C.D}**
- **show isis spbm static-isid-ipmc-route group {A.B.C.D} vrf WORD<1-16>**

Command Parameters

{A.B.C.D}

Specifies the route information by IP multicast group address.

vrf WORD<1-16>

Specifies the VRF name.

Default

None

Command Mode

User EXEC

Command Output

The **show isis spbm static-isid-ipmc-route group {A.B.C.D}** command displays the following information:

Output field	Description
SOURCE	Specifies the source IP address for the IS-IS SPBM static IP multicast route.
GROUP	Specifies the group IP address for the IS-IS SPBM static IP multicast route.
DATAISID	Specifies the data I-SID for the static I-SID IP multicast route.
BVLAN	Specifies the B-VLAN for the SPBM static I-SID IP multicast route.
NNI RCVRS	Specifies the network-to-network interface (NNI) receivers.
UNI RCVRS	Specifies the UNI receivers.
SOURCE-BEB	Specifies the source BEB for the SPBM static I-SID IP multicast route.

Example

The following example displays the SPBM static I-SID IP multicast route information by IP multicast group address.

```
Switch:1>show isis spbm static-isid-ipmc-route group 224.1.1.3
================================================================================
             SPBM STATIC ISID IP-MULTICAST ROUTE INFO - GlobalRouter
================================================================================
Source          Group     Data ISID  BVLAN  NNI Rcvrs    UNI Rcvrs    Source-BEB
--------------------------------------------------------------------------------
192.0.2.10     224.1.1.3    210       4051   1/9           -          LOCAL
192.0.2.20     224.1.1.3    210       4051   1/9           -          LOCAL
192.0.2.30     224.1.1.3    210       4051   1/9           -          LOCAL
192.0.2.40     224.1.1.3    210         -     -         V10:1/19/1  NON-LOCAL
--------------------------------------------------------------------------------
Number of SPBM STATIC ISID IP-MULTICAST ROUTE entries displayed: 4
--------------------------------------------------------------------------------
```

show isis spbm static-isid-ipmc-route local

Displays the Intermediate-System-to-Intermediate-System (IS-IS) Shortest Path Bridging MAC (SPBM) local static I-SID IP multicast route information.

Syntax

- **show isis spbm static-isid-ipmc-route local**
- **show isis spbm static-isid-ipmc-route local group {A.B.C.D}**
- **show isis spbm static-isid-ipmc-route local group {A.B.C.D} vrf WORD<1-16>**
- **show isis spbm static-isid-ipmc-route local vrf WORD<1-16>**

Command Parameters

group {A.B.C.D}

Specifies the route information by IP multicast group address.

vrf WORD<1-16>

Specifies the VRF name.

Default

None

Command Mode

User EXEC

Command Output

The **show isis spbm static-isid-ipmc-route local** command displays the following information:

Output field	Description
SOURCE	Specifies the source IP address for the IS-IS SPBM static IP multicast route.
GROUP	Specifies the group IP address for the IS-IS SPBM static IP multicast route.
DATAISID	Specifies the data I-SID for the static I-SID IP multicast route.
BVLAN	Specifies the B-VLAN for the SPBM static I-SID IP multicast route.
NNI RCVRS	Specifies the network-to-network interface (NNI) receivers.
UNI RCVRS	Specifies the UNI receivers.
SOURCE-BEB	Specifies the source BEB for the SPBM static I-SID IP multicast route.

Example

The following example displays the SPBM local static I-SID IP multicast route information.

```
Switch:1>show isis spbm static-isid-ipmc-route local
================================================================================
            SPBM STATIC ISID IP-MULTICAST ROUTE INFO - GlobalRouter
================================================================================
Source         Group     Data ISID  BVLAN  NNI Rcvrs   UNI Rcvrs   Source-BEB
--------------------------------------------------------------------------------
192.0.2.10     224.1.1.3    210       4051   1/9           -         LOCAL
192.0.2.20     224.1.1.3    210       4051   1/9           -         LOCAL
192.0.2.30     224.1.1.3    210       4051   1/9           -         LOCAL
--------------------------------------------------------------------------------
Number of SPBM STATIC ISID IP-MULTICAST ROUTE entries displayed: 3
--------------------------------------------------------------------------------
```

show isis spbm static-isid-ipmc-route non-local

Displays the Intermediate-System-to-Intermediate-System (IS-IS) Shortest Path Bridging MAC (SPBM) non-local static I-SID IP multicast route information.

Syntax

- **show isis spbm static-isid-ipmc-route non-local**
- **show isis spbm static-isid-ipmc-route non-local group {A.B.C.D}**
- **show isis spbm static-isid-ipmc-route non-local group {A.B.C.D} vrf WORD<1-16>**
- **show isis spbm static-isid-ipmc-route non-local vrf WORD<1-16>**

Command Parameters

group {A.B.C.D}

Specifies the route information by IP multicast group address.

vrf WORD<1-16>

Specifies the VRF name.

Default

None

Command Mode

User EXEC

Command Output

The **show isis spbm static-isid-ipmc-route non-local** command displays the following information:

Output field	Description
SOURCE	Specifies the source IP address for the IS-IS SPBM static IP multicast route.
GROUP	Specifies the group IP address for the IS-IS SPBM static IP multicast route.
DATAISID	Specifies the data I-SID for the static I-SID IP multicast route.
BVLAN	Specifies the B-VLAN for the SPBM static I-SID IP multicast route.
NNI RCVRS	Specifies the network-to-network interface (NNI) receivers.
UNI RCVRS	Specifies the UNI receivers.
SOURCE-BEB	Specifies the source BEB for the SPBM static I-SID IP multicast route.

Example

The following example displays the SPBM non-local static I-SID IP multicast route information.

```
Switch:1>show isis spbm static-isid-ipmc-route non-local
================================================================================
            SPBM STATIC ISID IP-MULTICAST ROUTE INFO - GlobalRouter
================================================================================
Source         Group     Data ISID  BVLAN  NNI Rcvrs   UNI Rcvrs   Source-BEB
--------------------------------------------------------------------------------
192.0.2.40     224.1.1.3    210        -     -         V10:1/19/1  NON-LOCAL
--------------------------------------------------------------------------------
Number of SPBM STATIC ISID IP-MULTICAST ROUTE entries displayed: 1
--------------------------------------------------------------------------------
```

show isis spbm static-isid-ipmc-route vrf

Displays the Intermediate-System-to-Intermediate-System (IS-IS) Shortest Path Bridging MAC (SPBM) static I-SID IP multicast route information on a particular VRF.

Syntax

- **show isis spbm static-isid-ipmc-route vrf WORD<1-16>**

Command Parameters

WORD<1-16>

Specifies the VRF name.

Default

None

Command Mode

User EXEC

Command Output

The **show isis spbm static-isid-ipmc-route vrf WORD<1-16>** command displays the following information:

Output field	Description
SOURCE	Specifies the source IP address for the IS-IS SPBM static IP multicast route.
GROUP	Specifies the group IP address for the IS-IS SPBM static IP multicast route.
DATAISID	Specifies the data I-SID for the static I-SID IP multicast route.
BVLAN	Specifies the B-VLAN for the SPBM static I-SID IP multicast route.
NNI RCVRS	Specifies the network-to-network interface (NNI) receivers.
UNI RCVRS	Specifies the UNI receivers.
SOURCE-BEB	Specifies the source BEB for the SPBM static I-SID IP multicast route.

Example

The following example displays the SPBM static I-SID IP multicast route information on a particular VRF.

```
Switch:1>show isis spbm static-isid-ipmc-route vrf test
================================================================================
             SPBM STATIC ISID IP-MULTICAST ROUTE INFO - VRF test
================================================================================
Source         Group     Data ISID  BVLAN  NNI Rcvrs   UNI Rcvrs   Source-BEB
--------------------------------------------------------------------------------
192.0.2.10     224.1.1.3    210       4051   1/9           -         LOCAL
192.0.2.20     224.1.1.3    210       4051   1/9           -         LOCAL
192.0.2.30     224.1.1.3    210       4051   1/9           -         LOCAL
192.0.2.40     224.1.1.3    210         -     -         V10:1/19/1  NON-LOCAL

--------------------------------------------------------------------------------
Number of SPBM STATIC ISID IP-MULTICAST ROUTE entries displayed: 4
--------------------------------------------------------------------------------
```

show isis spbm unicast-fib

Display the IS-IS SPBM unicast FIB.

Syntax

- **show isis spbm unicast-fib [b-mac <0x00:0x00:0x00:0x00:0x00:0x00>] [vlan <2-4059>] [summary] [home|remote]**

Command Parameters

b-mac <0x00:0x00:0x00:0x00:0x00:0x00>

Displays the Forwarding Information Base (FIB) entry for the specified Backbone MAC (BMAC).

home

Displays the IS-IS SPBM unicast FIB information that the system configures in the home area.

remote

Displays the IS-IS SPBM unicast FIB information that the system configures in the remote area.

summary

Displays a summary of the Forwarding Information Base (FIB).

vlan <2-4059>

Specifies the VLAN ID for which to display the FIB. Specifies the VLAN ID in the range of 2 to 4059. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1. By default, the system reserves VLAN IDs 4060 to 4094 for internal use. If you enable VRF scaling and SPBM mode, the system also reserves VLAN IDs 3500 to 3998.

Default

None

Command Mode

User EXEC

Command Output

The **show isis spbm unicast-fib** command displays the following information:

Parameter	Description
DESTINATION ADDRESS	Indicates the destination MAC Address of the unicast FIB entry.
B-VLAN	Indicates the B-VLAN of the unicast FIB entry.
SYSID	Indicates the destination system identifier of the unicast FIB entry.
HOST-NAME	Indicates the destination host name of the unicast FIB entry.

Parameter	Description
OUTGOING INTERFACE	Indicates the outgoing interface of the unicast FIB entry.
COST	Indicates the cost of the unicast FIB entry.
AREA	Indicates the type of area as home or remote.
AREA-NAME	Indicates the name of the area.

Example

```
Switch:1>show isis spbm unicast-fib
================================================================================================================
                          SPBM UNICAST FIB ENTRY INFO
================================================================================================================
DESTINATION          BVLAN SYSID          HOST-NAME    OUTGOING       COST   AREA    AREA-NAME
ADDRESS                                                INTERFACE
----------------------------------------------------------------------------------------------------------------
00:16:ca:23:73:df   1000  0016.ca23.73df  SPBM-1       1/21           10     HOME    area-9.00.02
00:16:ca:23:73:df   2000  0016.ca23.73df  SPBM-1       1/21           10     HOME    area-9.00.02
00:18:b0:bb:b3:df   1000  0018.b0bb.b3df  SPBM-2       MLT-2          10     HOME    area-9.00.02
00:14:c7:e1:33:e0   1000  0018.b0bb.b3df  SPBM-2       MLT-2          10     HOME    area-9.00.02
00:18:b0:bb:b3:df   2000  0018.b0bb.b3df  SPBM-2       MLT-2          10     HOME    area-9.00.02

----------------------------------------------------------------------------------------------------------------
Home:   Total number of SPBM UNICAST FIB entries 5
Remote: Total number of SPBM UNICAST FIB entries 0
----------------------------------------------------------------------------------------------------------------
```

show isis spbm unicast-tree

Display the Shortest Path Bridging MAC (SPBM) unicast tree.

Syntax

- **show isis spbm unicast-tree <2-4059>**
- **show isis spbm unicast-tree <2-4059> destination xxxx.xxxx.xxxx - 6 bytes**
- **show isis spbm unicast-tree <2-4059> home**
- **show isis spbm unicast-tree <2-4059> remote**

Command Parameters

<2-4059>

Displays the unicast tree for the specified destination. Specifies the VLAN ID in the range of 2 to 4059. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1. By default, the system reserves VLAN IDs 4060 to 4094 for internal use. If you enable VRF scaling and SPBM mode, the system also reserves VLAN IDs 3500 to 3998.

destination xxxx.xxxx.xxxx - 6 bytes

Displays the unicast tree for the specified destination.

home

Displays the unicast tree for the home area.

remote

Displays the unicast tree for the remote area.

Default

None

Command Mode

User EXEC

show isis spb-mcast summary

Displays IP multicast over Fabric Connect summary information.

Syntax

- **show isis spb-mcast-summary**
- **show isis spb-mcast-summary count**
- **show isis spb-mcast-summary host-name WORD<0-255>**
- **show isis spb-mcast-summary lspid <xxxx.xxxx.xxxx.xx-xx>**

Command Parameters

count

Specifies the total number of SPB Multicast entries.

host-name WORD<0-255>

Displays the IP Multicast over Fabric Connect summary for a given host-name.

lspid xxxx.xxxx.xxxx.xx-xx

Displays the IP Multicast over Fabric Connect summary for a given LSP ID.

Default

None

Command Mode

User EXEC

Command Output

The **show isis spb-mcast-summary** command displays the following information:

Output field	Description
SCOPE I-SID	Indicates the I-SID that specifies the multicast streams when the scope is either the Layer 3 VSN or the Layer 2 VSN or any combination.
SOURCE ADDRESS	Indicates the IP multicast source address that maps to the I-SID.
GROUP ADDRESS	Indicates the IP multicast group address that maps to the I-SID.
DATA I-SID	Specifies the data I-SID for the IP Multicast over Fabric Connect route. After a BEB receives the IP Multicast over Fabric Connect data from a sender, the BEB allocates a data I-SID in the range of 16,000,000 to 16,512,000 for the stream. The stream is identified by the source IP address, group IP address, and the local VLAN the stream is received on. The data I-SID is a child of the scope or VSN I-SID.
BVID	Indicates the ID of the SPBM backbone VLAN (B-VLAN) on which the multicast stream forwards in the SPBM cloud.
LSP FRAG	Indicates the fragment number of the LSP ID.
HOST-NAME	Specifies the host name listed in the LSP, or the system name if the host is not configured.

show isis statistics

Display Intermediate-System-to-Intermediate-System (IS-IS) statistics.

Syntax

- **show isis statistics**

Default

None

Command Mode

User EXEC

Command Output

The **show isis statistics** command displays the following information:

Parameter	Description
LEVEL	Shows the level of the IS-IS interface.
CORR LSPs	Shows the number of corrupted LSPs detected.
AUTH FAILS	Shows the number of times authentication has failed on the global level.
AREA DROP	Shows the number of manual addresses dropped from the area.
MAX SEQ EXCEEDED	Shows the number of attempts to exceed the maximum sequence number.
SEQ NUM SKIPS	Shows the number of times the sequence number was skipped.
OWN LSP PURGE	Shows how many times the local LSP was purged.
BAD ID LEN	Shows the number of ID field length mismatches.
PART CHANGES	Shows the number of partition link changes.
LSP DB OLOAD	Show the number of times the switch was in the overload state.
AREA	Indicates the type of area as home or remote.
AREA-NAME	Indicates the name of the area.

Example

```
Switch:1>show isis statistics
================================================================================================
                                    ISIS System Stats
================================================================================================
LEVEL    CORR   AUTH   AREA   MAX SEQ   SEQ NUM  OWN LSP  BAD ID  PART    LSP DB  AREA   AREA-NAME
         LSPs   FAILS  DROP   EXCEEDED  SKIPS    PURGE    LEN     CHANGES OLOAD
------------------------------------------------------------------------------------------------
Level-1  0      0      0      0         1        0        0       0       0       HOME    area-9.00.02
Level-1  0      0      0      0         1        0        0       0       0       REMOTE  area-9.00.02
```

show isis system-id

Display Intermediate-System-to-Intermediate-System (IS-IS) system ID.

Syntax

- **show isis system-id**

Default

None

Command Mode

User EXEC

Command Output

The **show isis system-id** command displays the following information:

Output field	Description
SYSTEM-ID	Shows the system ID. Output from this show command is from the global IS-IS configuration of the system ID. There is one system ID configured. The system ID is 6 bytes in length.

show khi cpp port-statistics

Displays key health information about the type of packets and protocols received on a port. This command helps debug high CPU utilization issues.

Syntax

- **show khi cpp port-statistics [{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]**
- **show khi cpp port-statistics spbm-internal-ports [<rx | tx>]**

Command Parameters

spbm-internal-ports [<rx | tx>]

Displays port statistics for SPBM internal ports. You can filter by either receiving or transmitting port.

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

User EXEC

Usage Guidelines

For MLTs, statistics in the **show khi cpp port-statistics** command output increment equally on all MLT member ports.

show khi mgmt statistics

View the management statistics of the switch by checking their key health indicators.

Syntax

- **show khi mgmt statistics [clip | oob | vlan]**

Command Parameters

clip

Shows key health indicator management statistics for the loopback interface.

oob

Shows key health indicator management statistics for the Out-of-Band interface.

vlan

Shows key health indicator management statistics for the VLAN interface.

Default

None

Command Mode

User EXEC

Usage Guidelines

The *oob* parameter only applies to hardware with a dedicated physical management interface.

show khi performance

View the performance of the various components of the switch by checking their key health indicators.

Syntax

- **show khi performance**
- **show khi performance buffer-pool [{slot[-slot][,...]}]**
- **show khi performance cpu [{slot[-slot][,...]}]**
- **show khi performance memory [history | {slot[-slot][,...]}]**
- **show khi performance process [{slot[-slot][,...]}]**
- **show khi performance process sort <process-name | vmsize>**
- **show khi performance pthread [{slot[-slot][,...]}]**
- **show khi performance pthread sort <cpu | thread-name>**
- **show khi performance rx-queue**
- **show khi performance slabinfo [{slot[-slot][,...]}]**

Command Parameters

buffer-pool {slot[-slot][,...]}

Shows buffer performance and utilization statistics. {slot [-slot] [,...]} specifies the slot number.

cpu {slot [-slot] [,...]}

Shows current utilization, 5-minute average utilization, and 5-minute high water mark with date and time of event. {slot [-slot][,...]} specifies the slot number.

memory [history | {slot[-slot][,...]}]

Shows memory performance and utilization statistics. {slot [-slot][,...]} specifies the slot number. The optional history parameter displays virtual memory history.

process {slot [-slot] [,...]}

Shows process performance and utilization statistics. {slot [-slot][,...]} specifies the slot number.

process sort <process-name | vmsize>

Sorts the process output either by process name or virtual memory size.

pthread {slot[-slot][,...]}

Shows thread performance and utilization statistics. {slot [-slot][,...]} specifies the slot number.

sort <cpu | thread-name>

Sorts the thread output either by CPU utilization or thread name.

rx-queue

Shows the queue performance and utilization statistics.

slabinfo {slot[-slot][,...]}

Shows internal memory management resource performance and utilization statistics. {slot[-slot] [,...]} specifies the slot number.

Default

None

Command Mode

User EXEC

show khi resource-scaling

Displays Fabric scaling resource information.

Syntax

- **show khi resource-scaling**

Default

None

Command Mode

User EXEC

Command Output

The **show khi resource-scaling** command displays the following information:

Output field	Description
Item	Displays the name of the resource.
Maximum (theoretical)	Displays the maximum value the resource can reach. This maximum depends on the platform. For more information, see *Fabric Engine Release Notes*.
Maximum (actual)	Displays the result of the formula: Currently used + Available
Currently used	Displays the current value from the system.
Available	Displays the difference between the maximum value and the current value of the resource if the current does not exceed the maximum; otherwise 0 displays. The value can be reduced further by the system resources used by the local device or other devices on the SPBM Fabric.

Output field	Description
Usage	Displays the result of the following formula as a percentage: current / (current + available)
Shared resource group	Displays combined resource usage derived from RES1 (Multiprotocol Label Switching), RES2 (Network Virtualization Profile), and RES3 (Associated Virtual Port tables.

The following example displays resources information for Fabric scaling.

```
Switch:1#show khi resource-scaling
================================================================================================================================
                                        KHI resource-scaling
================================================================================================================================
Item                                    Maximum       Maximum     Currently  Available   Usage   Shared resource
                                        (theoretical) (actual)    used                   (%)     group
--------------------------------------- ------------- ----------- ---------- ----------- ------- ------------------

SPBM nodes
--------------------------------------------------------------------------------------------------------------------------------
SPBM nodes home area                    500           500         7          493           1 %   RES1,RES2
SPBM interior nodes home area                                     1
SPBM virtual nodes home area                                      2
SPBM boundary nodes home area                                     4
SPBM nodes remote area                  500           500         6          494           1 %   RES1,RES2
SPBM interior nodes remote area                                   5
SPBM virtual nodes remote area                                    1
SPBM boundary nodes remote area                                   0
Total SPBM Nodes                        800           695         13         682           2 %   RES1,RES2


BMACs

--------------------------------------------------------------------------------------------------------------------------------
Nodal SYS Id BMACs                                                13
VIST virtual BMACs                                                2
Multi-Area boundary node redirect BMACs                           8
MCoSPB_source BMACs (*N1, *N2)                                    0
Total BMACs                             800           800         23         777           3 %   RES1,RES2

ISIS
--------------------------------------------------------------------------------------------------------------------------------
Physical ISIS interfaces                                          7
L2FE ISIS interfaces                                              1
L3FE ISIS interfaces                    128           120         0          120           0 %   RES1
Total ISIS interfaces                   128           128         8          120           6 %   RES1

Services
--------------------------------------------------------------------------------------------------------------------------------
Multicast-fib entries                   10000         10000       1844       8156         18 %
L2VSNs                                  3580          3580        465        3115         13 %   RES1
L2VSNs redistributed                    2000          1998        463        1535         23 %
Transparent UNIs                        53            53          0          53            0 %   RES1,RES3
Switched UNIs                           4900          4900        1          4899          1 %   RES1,RES3,RES3
Private VLANs                           200           200         1          199           1 %
L3VSNs                                  256           256         32         224          12 %   RES1,RES3
** Details:
 *N1 - physical nodes and MA virtual nodes
 *N2 - BEBs sending traffic to this node
```

show lacp

View Link Aggregation Control Protocol (LACP) configuration information to determine the LACP parameters and to ensure your configuration is correct.

Syntax

- **show lacp**
- **show lacp actor-admin interface [gigabitethernet {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}] [vid <1-4059>]]**
- **show lacp actor-oper interface [gigabitethernet {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}] [vid <1-4059>]]**
- **show lacp extension interface [gigabitethernet {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}] [vid <1-4059>]]**
- **show lacp partner-admin interface [gigabitethernet {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}] [vid <1-4059>]]**
- **show lacp partner-oper interface [gigabitethernet {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}] [vid <1-4059>]]**

Command Parameters

actor-admin

Shows LACP actor administrative information for all interfaces.

actor-oper

Shows all LACP actor operational information for all interfaces.

extension

Show all LACP timer information.

interface

Shows all LACP port configuration information for all interfaces.

interface mlt <64-6399>

Shows the MLT LACP information for all MLTs or the specific MLT index.

interface mlt id <1-512>

Specifies the MLT ID.

partner-admin

Shows all LACP partner adminstrative information.

partner-oper

Shows all LACP partner operational information.

vid <1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

User EXEC

show lacp interface

View Link Aggregation Control Protocol (LACP) statistics for each port to monitor LACP performance of the port.

Syntax

- **show lacp interface**
- **show lacp interface [gigabitethernet [{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}] [vid <1-4059>]]**
- **show lacp interface mlt [<64-6399>] [id <1-512>]**

Command Parameters

gigabitethernet *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

mlt <64-6399>

Shows the MLT LACP information for all MLTs or the specific MLT index.

mlt id <1-512>

Specifies the MLT ID.

vid <1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

User EXEC

show license

Display the existing software licenses on the platform.

Syntax

- **show license**

Default

None

Command Mode

User EXEC

show link-state group

Displays the status of the link-state group.

Syntax

- **show link-state group <1-48>**
- **show link-state group <1-48> detail**

Command Parameters

<1-48>

Specifies the link-state group ID.

detail

Displays detailed information about the LST group.

Default

None

Command Mode

User EXEC

show logging

Use this command to display logging information.

Syntax

- **show logging config**
- **show logging info**
- **show logging level**
- **show logging transferFile <1-10>**

Command Parameters

config

Displays the global logging information.

info

Displays the logging information.

level

Displays the configuration of event logging.

transferFile <1-10>

Displays the file transfer configuration. <1-10> specifies the host ID.

Default

None

Command Mode

User EXEC

Command Output

The **show logging transferFile** command displays the following information:

Output field	Description
RemoteIPAddress	Displays the configured address for the remote server.
FileName	Displays the log filename.
FileNamePrefix	Displays the prefix appended to the log filename.
Username	Displays the user name for the remote server.
TransferType	Displays the type of transfer used for the log file.
PublicKey	Displays the location of the public key for Secure Copy (SCP) transfer.

Example

The following example displays the file transfer configuration for host 1:

```
Switch:1>show logging transferfile 1

         RemoteIPAddress : 192.0.2.10
                FileName : scp.02d80001.131
          FileNamePrefix : scp
                Username : scp_user
            TransferType : SCP
               PublicKey : /intflash/shared/my_key.pub
```

show logging file

View log files by file name, category, severity, or CP to identify possible problems.

Syntax

- **show logging file**
- **show logging file alarm**
- **show logging file CPU WORD<0-100>**
- **show logging file detail**
- **show logging file event-code WORD<0-10>**
- **show logging file module WORD<0-100>**
- **show logging file name-of-file WORD<1-99>**
- **show logging file save-to-file WORD<1-99>**
- **show logging file severity WORD<0-25>**
- **show logging file tail**
- **show logging file vrf WORD<0-32>**

Command Parameters

alarm

Displays alarm log entries.

CPU WORD<0-100>

Filters and list the logs according to the CPU that generated it. Specify a string length of 0-25 characters. To specify multiple filters, separate each CPU by the vertical bar (|), for example, CPU1|CPU2. Different hardware platforms support a different number of CPUs. For more information, see your hardware documentation.

detail

Displays CLI and SNMP logging information.

event-code WORD<0-10>

Specifies a number that precisely identifies the event reported. WORD<0-10> specifies the event code in the format: {0x0-0x00FFFFFF| 0x0-0x00FFFFFF}.

module WORD<0-100>

Filters and list the logs according to module. Specify a string length of 0-100 characters. Categories include SNMP, EAP, RADIUS, RMON, WEB, STG, IGMP, HW, MLT, FILTER, QOS, CLILOG, SW, CPU, IP, VLAN, IPMC, IP-RIP, OSPF, PIM, POLICY, RIP, and SNMPLOG. To specify multiple filters, separate each category by the vertical bar (|), for example, OSPF|FILTER|QOS. Use the command show logging file module clilog to view the CLI log. Use the command show logging file module snmplog to view the SNMP log.

name-of-file WORD <1-99>

Displays the valid logs from this file. For example, /intflash/logcopy.txt. You cannot use this command on the current log file-the file into which the messages are currently logged). Specify a string length of 1-99 characters.

save-to-file WORD<1-99>

Redirects the output to the specified file and removes all encrypted information. The tail option is not supported with the save-to-file option.

severity WORD <0-25>

Filters and list the logs according to severity. Choices include INFO, ERROR, WARNING, FATAL. To specify multiple filters, separate each severity by the vertical bar (|), for example, ERROR|WARNING|FATAL.

tail

Shows the last results first.

vrf WORD<0-32>

Specifies the name of a VRF instance to show log messages that only pertain to that VRF.

Default

None

Command Mode

User EXEC

show mac-address-table aging-time

Display forwarding database aging time for all VLANs globally.

Syntax

- **show mac-address-table aging-time**

Default

None

Command Mode

User EXEC

show macsec

Display information about Media Access Control Security (MACsec).

Syntax

- **show macsec**

Default

None

Command Mode

User EXEC

Command Output

The **show macsec** command displays the following information:

Output field	Description
Connectivity Association Name	Specifies the name of the connectivity association (CA).
SHA-1 Connectivity Association Key Hash	Specifies the CA hash key.
AN_Mode / TxKeyParity	Specifies the CA mode and transmission key parity value.

Output field	Description
Port Members	Specifies the ports that are members of a CA.
PortId	Specifies the port ID.
MACSEC Status	Specifies whether MACsec is enabled on a port.
Encryption Status	Specifies whether encryption is enabled on a port.
Replay Protect	Specifies whether replay protection is enabled.
Replay Protect W'dow	Specifies the maximum acceptable difference in packet ID numbers between out of order packets. If a packet ID number differs from the ID number of the previously received packet by more than the specified window size, the packet is dropped.
Encryption Offset	Specifies the number of bytes after the Ethernet header from which data encryption begins. Possible values are 30 (IPv4 plus TCP/UDP header) and 50 (IPv6 plus TCP/UDP header). The default is no offset.
Cipher Suite	Specifies the cipher suite for encrypting traffic with MACsec. The following cipher suites are supported: • GCM-AES-128 standard, with a maximum key length of 128 bits • GCM-AES-256 standard, with a maximum key length of 256 bits • **Note:** GCM-AES-XPN-128 and GCM-AES-XPN-256 applies to 7830 Series, 7520-48YE-8CE, and 5720-VIM-2CE. The default is the GCM-AES-128 standard.
CA Name	Specifies the name of the connectivity association.
MKA-Profile Name	Specifies the MKA profile name. An MKA profile name consists only of alphanumeric characters (0-9, A-Z, and a-z). The profile name is case sensitive.
MKA Connect Status	Specifies the MKA connection status.

Example

The **`show macsec`** command displays the following information:

```
Switch:1>show macsec

================================================================================================
                    MACSEC Connectivity Associations Info
================================================================================================
 Connectivity             SHA-1 Connectivity              AN_Mode /       Port
Association Name          Association Key Hash            TxKeyParity     Members
------------------------------------------------------------------------------------------------
conn1                550e0fb1dec7eaa40a473b09790c8745      4AN / Even

All 1 out of 1 Total Num of Macsec connectivity associates displayed


================================================================================================
                             MACSEC Port Status
================================================================================================
         MACSEC     Encryption  Replay   Replay       Encryption    Cipher     CA   MKA-Profile  MKA Connect
PortId   Status     Status     Protect   Protect W'dow   Offset     Suite      Name Name         Status
------------------------------------------------------------------------------------------------
```

```
1/1      disabled   disabled   disabled   --            none       AES-128    Nil  --          --
1/2      disabled   disabled   disabled   --            none       AES-128    Nil  --          --
1/3      disabled   disabled   disabled   --            none       AES-128    Nil  --          --
1/4      disabled   disabled   disabled   --            none       AES-128    Nil  --          --
1/5      disabled   disabled   disabled   --            none       AES-128    Nil  --          --
```

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

show macsec connectivity-association

Display the connectivity-association (CA) details. For security reasons, the CA key is not displayed.

Syntax

- **show macsec connectivity-association [WORD<5-32>]**

Command Parameters

WORD<5-32>

Specifies a connectivity-association name as an alphanumeric string.

Default

None

Command Mode

User EXEC

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

show macsec mka keychain

Display information about all MACsec MKA Keychain Associations configured on the switch.

Syntax

- show macsec mka keychain [WORD<5-32>]

Default

None

Command Mode

User EXEC

Command Output

The **show macsec mka keychain** command displays the following information:

Output field	Description
Connectivity Keychain name	Displays the keychain name configured on the switch.
Configured Keys number	Displays the number of keys configured from the keychain association.
Port Members	Displays the ports associated with the keychain.
Key Name (CKN) Key SHA-1 Hash (CAK SHA-1 Hash)	Displays the Connectivity Association Name and the key associated with the keychain.
Key Expiry (UTC)	Displays the expiry time for the associated key.
Key Status	Displays the status of the keys in the following states: • Valid—a key with a valid end time but no MACsec MKA enabled on the port • Expired—a key that is no longer valid • In-use—a key with a valid end time and assigned ports with MACsec MKA enabled

The following example displays output from the **show macsec mka keychain** command:

```
Switch:1#show macsec mka keychain
=============================================================================================================
                                    MACSEC MKA Keychain Info
=============================================================================================================
Connectivity     Configured   Port        Key Name (CKN)                              Key                   Key
Keychain name    Keys number  Members     Key SHA-1 Hash (CAK SHA-1 Hash)             Expiry (UTC)          Status
-------------------------------------------------------------------------------------------------------------
Keychain1          3          1/1         KeyNumber1                                  Unlimited             Valid
                                          08e621a7fb61258e130fb626d766278772d82688
                                          KeyNumber2                                  07/18/2025 07:28:00   Expired
                                          62c07c431fe79e9bdf6e443caddb4b9d8a8c5fc9
                              1/4-1/5     KeyNumber3                                  07/18/2028 12:12:12   In-use
                                          0e98c2db829c2cb599eedfbdecd01d6c6efeacd7

All 1 out of 1 Total Num of Macsec mka keychains displayed
```

show macsec mka participant

Display information about participants in an MKA session.

Syntax

- **show macsec mka participant**
- **show macsec mka participant {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} [verbose]**

Default

None.

Command Mode

User EXEC

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

Command Output

The **show macsec mka participant** command displays the following information:

Output field	Description
PortId	Specifies the port number of the MKA session participant.
CA Name	Specifies the Connectivity Association (CA) name associated with the MKA session participant.
MKA-Profile Name	Specifies the name of the MKA profile.
MKA Enable	Specifies whether MKA is enabled for the port.
Actor Priority	Specifies a hexadecimal value for actor priority, which determines key server selection.

Examples

The following example displays information for all participants in an MKA session.

```
Switch:1>show macsec mka participant

================================================================================================
                            MACsec MKA Participants
================================================================================================
Port      CA              MKA-Profile       MKA          Actor
Id        Name               Name           Enable       Priority
------------------------------------------------------------------------------------------------
1/3       CA120022        extreme030519     Enabled         A
1/4       CA121023        extreme031519     Enabled         14
2/2       CA122024        extreme032019     Enabled         1E
------------------------------------------------------------------------------------------------
```

The following example displays information for a specific port participating in an MKA session.

```
Switch:1>show macsec mka participant 1/3

================================================================================================
                              MACsec MKA Participant
================================================================================================
Port      CA              MKA-Profile       MKA          Actor
Id        Name               Name           Enable       Priority
------------------------------------------------------------------------------------------------
1/3       CA120022        extreme030519     Enabled         A
------------------------------------------------------------------------------------------------
```

show macsec mka profile

Display information about all MKA profiles configured on the switch. You can also display information for a specific MKA profile.

Syntax

- **show macsec mka profile**
- **show macsec mka profile WORD<0-16>**

Command Parameters

WORD<0-16>

Specifies the MKA profile name. An MKA profile name can consist only of alphanumeric characters (0-9, A-Z, and a-z). The profile name is case sensitive.

Default

None

Command Mode

User EXEC

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

Command Output

The **show macsec mka profile** command displays the following information:

Output field	Description
Profile-name	Specifies the profile name.
Profile ID	Specifies the profile ID number.
Cipher Suite	Specifies the encryption algorithm used to encrypt traffic on an Ethernet link that is secured with MACsec.
Confidentiality Offset	Specifies the number of unencrypted bytes that precede MACsec encryption.
Replay Protect	Specifies whether replay protect is enabled. The default is disabled.
Window Size	Specifies the size of the replay protect window.
Port	Specifies the port to which the MKA profile is applied.
Include-SCI	Specifies whether SCI tagging for a MACsec enabled switch. The default is disabled.

Examples

The following example displays MACsec MKA profile information:

The following example displays MACsec MKA information for a specific profile.

```
Switch:1>show macsec mka profile profileMKA

================================================================================
                           MACsec MKA Profile
================================================================================
Profile   Profile Cipher       Confidentiality  Replay   Window  Port  Include-SCI
Name       Id     Suite        Offset           Protect   Size
--------------------------------------------------------------------------------
profileMKA 4     gcm-aes-128  30               Disabled  0       1/1  true
--------------------------------------------------------------------------------
```

show macsec mka statistics

Display MACsec Key Agreement (MKA) statistics for a port.

Syntax

- **show macsec mka statistics {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Default

None.

Command Mode

User EXEC

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

Command Output

The **show macsec mka statistics** command displays the following information:

Output field	Description
MKPDUs Validated & Rx	Specifies the number of MACsec Key Agreement Protocol Data Units (MKPDU) validated and received.
Rx Distributed SAK	Specifies the number of Secure Association Keys (SAK) received.
MKPDUs Transmitted	Specifies the number of MKPDUs transmitted.
Tx Distributed SAK	Specifies the number of SAKs transmitted.

Example

The following example displays MACsec MKA statistics for a port.

```
Switch:1>show macsec mka statistics 1/3
================================================================================================
                        MKPDU Statistics on interface 1/3
================================================================================================
         MKPDUs Validated & Rx           : 1630
         Rx Distributed SAK              : 2
         MKPDUs Transmitted              : 1694
         Tx Distributed SAK              : 0
------------------------------------------------------------------------------------------------


------------------------------------------------------------------------------------------------
```

show macsec statistics

Display MACsec statistics for all ports or for an individual port.

Syntax

- **show macsec statistics**
- **show macsec statistics {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **show macsec statistics {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} secure channel <inbound | outbound>**

Default

None.

Command Mode

User EXEC

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

Command Output

The **show macsec statistics** command displays the following information:

Output field	Description
Port ID	Specifies the ID of the port to which the MACsec statistics apply.
TxUntagged Packets	Specifies the number of transmitted packets without the MAC security tag (SecTAG), with MACsec disabled on the interface.
TxTooLong Packets	Specifies the number of transmitted packets discarded because the packet length is greater than the Maximum Transmission Unit (MTU) of the Common Port interface.
RxUntagged Packets	Specifies the number of received packets without the SecTAG, with MACsec not operating in strict mode.
RxNoTag Packets	Specifies the number of received packets without the SecTAG, with MACsec operating in strict mode.
RxBadTag Packets	Specifies the number of received packets discarded with an invalid SecTAG, or with a zero value Packet Number (PN)/invalid Integrity Check Value (ICV).
RxUnknown SCIPackets	Specifies the number of packets received with an unknown Secure Channel Identifier (SCI) and with MACsec not operating in strict mode.
RxNoSCI Packets	Specifies the number of packets received with an unknown SCI and with MACsec operating in strict mode.
RxOverrun Packets	Specifies the number of packets discarded because the number of received packets exceeded the cryptographic performance capabilities.

Example

The following example displays MACsec statistics for a specific port.

```
Switch:1>show macsec statistics 1/13
================================================================================================
                              MACSEC Port Statistics
```

```
=============================================================================================================
        TxUntagged       TxTooLong       RxUntagged      RxNoTag
PortId   Packets          Packets         Packets        Packets
-------------------------------------------------------------------------------------------------------------
1/13       0               0               0               0

          RxBadTag      RxUnknown       RxNoSCI       RxOverrun
PortId    Packets       SCIPackets      Packets        Packets
-------------------------------------------------------------------------------------------------------------
1/13       0               0               0               0
```

show macsec status

Display the following information for MACsec enabled interfaces:

- MACsec status
- MACsec encryption status
- CAK in MD5 checksum format

Syntax

- **show macsec status**
- **show macsec status {slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]}**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

User EXEC

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

Command Output

The **show macsec status** command displays the following information:

Output field	Description
PortId	Specifies the port ID number.
MACSEC Status	Specifies whether MACsec is enabled.
Encryption Status	Specifies whether encryption is enabled.
Replay Protect	Specifies whether replay protection is enabled.
Replay Protect Window	Specifies the size of the replay protect window.
Encryption Offset	Specifies the number of unencrypted bytes that precede MACsec encryption.
Cipher Suite	Specifies the encryption algorithm used to encrypt traffic on an Ethernet link that is secured with MACsec.
CA Name	Specifies the name of the Connectivity Association.
MKA-Profile Name	Specifies the name of the MKA profile applied to the port.
MKA Connect Status	Specifies the MKA connection status.

Example

The following example displays MACsec status for all ports:

```
Switch:1>show macsec status

================================================================================================================================
                                                MACSEC Port Status
================================================================================================================================
         MACSEC     Encryption  Replay      Replay       Encryption       Cipher     CA       MKA-Profile      MKA Connect
PortId   Status     Status      Protect     Protect W'dow   Offset         Suite      Name     Name             Status
--------------------------------------------------------------------------------------------------------------------------------
1/1      enabled    enabled     enabled     --              ipv4Offset(30)  AES-128   KeyNumber1 profileMKA     secure
1/13     disabled   disabled    disabled    --              none            AES-128   NIL        --             --
1/14     disabled   disabled    disabled    --              none               AES-128   NIL        --             --
1/15     enabled    disabled    enabled     50              ipv4Offset(30)  AES-256   mkanka   extreme          pending
```

The following example displays MACsec status for a specific port:

```
Switch:1>show macsec status 1/13

================================================================================================================================
                                                MACSEC Port Status
================================================================================================================================
         MACSEC     Encryption  Replay      Replay        Encryption       Cipher     CA       MKA-Profile      MKA Connect
PortId   Status     Status      Protect     Protect W'dow   Offset         Suite      Name     Name             Status
--------------------------------------------------------------------------------------------------------------------------------
1/13     enabled    disabled    enabled     50          ipv4Offset(30)      AES-256   mkanka   extreme          pending
```

show mgmt dhcp-client

Shows DHCP Client configuration information for the Segmented Management Instance.

Syntax

- **show mgmt dhcp-client**
- **show mgmt dhcp-client log**

Command Parameters

log

Shows log information specific to the DHCP Client for the Segmented Management Instance.

Default

None

Command Mode

User EXEC

Command Output

The **show mgmt dhcp-client** command displays the following information:

Output field	Description
DHCP-CLIENT-MODE	Specifies the DHCP Client mode as disabled, oob, vlan, or cycle.
PREFERRED-INTERFACE	Specifies the preferred interface for DHCP requests.

Examples

```
Switch:1>show mgmt dhcp-client
================================================================================
                            Mgmt DHCP Client Info:
================================================================================
DHCP-CLIENT-MODE     PREFERRED-INTERFACE
--------------------------------------------------------------------------------
disabled             none
--------------------------------------------------------------------------------

Switch:1>show mgmt dhcp-client log
Jun  5 05:45:26 gemini daemon.info dhclient: DHCPDISCOVER on linuxFAN to 255.255.255.255 port 67
interval 18
Jun  5 05:45:26 gemini local0.err dhclient-fan: DHCPDISCOVER on linuxFAN to 255.255.255.255 port 67
interval 18
Jun  5 05:45:44 gemini daemon.info dhclient: DHCPDISCOVER on linuxFAN to 255.255.255.255 port 67
```

```
interval 9
Jun  5 05:45:44 gemini local0.err dhclient-fan: DHCPDISCOVER on linuxFAN to 255.255.255.255 port 67
interval 9
Jun  5 05:45:53 gemini daemon.info dhclient: DHCPDISCOVER on linuxFAN to 255.255.255.255 port 67
interval 8
Jun  5 05:45:53 gemini local0.err dhclient-fan: DHCPDISCOVER on linuxFAN to 255.255.255.255 port 67
interval 8
Jun  5 05:46:01 gemini daemon.info dhclient: No DHCPOFFERS received.
Jun  5 05:46:01 gemini daemon.info dhclient: No working leases in persistent database - sleeping.
Jun  5 05:46:01 gemini local0.err dhclient-fan: No DHCPOFFERS received.
Jun  5 05:46:01 gemini local0.err dhclient-fan: No working leases in persistent database - sleeping.
Jun  5 05:46:13 gemini daemon.info dhclient: DHCPDISCOVER on linuxFAN to 255.255.255.255 port 67
interval 6
Jun  5 05:46:13 gemini local0.err dhclient-fan: DHCPDISCOVER on linuxFAN to 255.255.255.255 port 67
interval 6
Jun  5 05:46:19 gemini daemon.info dhclient: DHCPDISCOVER on linuxFAN to 255.255.255.255 port 67
interval 15
Jun  5 05:46:19 gemini local0.err dhclient-fan: DHCPDISCOVER on linuxFAN to 255.255.255.255 port 67
interval 15
Jun  5 05:46:34 gemini daemon.info dhclient: DHCPDISCOVER on linuxFAN to 255.255.255.255 port 67
interval 17
Jun  5 05:46:34 gemini local0.err dhclient-fan: DHCPDISCOVER on linuxFAN to 255.255.255.255 port 67
interval 17
Jun  5 05:46:51 gemini daemon.info dhclient: DHCPDISCOVER on linuxFAN to 255.255.255.255 port 67
interval 17
Jun  5 05:46:51 gemini local0.err dhclient-fan: DHCPDISCOVER on linuxFAN to 255.255.255.255 port 67
interval 17
Jun  5 05:47:08 gemini daemon.info dhclient: DHCPDISCOVER on linuxFAN to 255.255.255.255 port 67
interval 6
Jun  5 05:47:08 gemini local0.err dhclient-fan: DHCPDISCOVER on linuxFAN to 255.255.255.255 port 67
interval 6
```

show mgmt interface

Shows general configuration information about a Segmented Management Instance.

Syntax

- **show mgmt interface [clip] [oob] [vlan]**

Command Parameters

clip

Shows information specific to the management CLIP.

oob

Shows information specific to the management OOB.

vlan

Shows information specific to the management VLAN.

Default

None

Command Mode

User EXEC

Usage Guidelines

The *oob* parameter only applies to hardware with a dedicated physical management interface.

show mgmt ip

Shows IPv4 address information for a Segmented Management Instance.

Syntax

- **show mgmt ip**
- **show mgmt ip clip**
- **show mgmt ip icmp-statistics**
- **show mgmt ip ip-statistics**
- **show mgmt ip oob**
- **show mgmt ip tcp-connections**
- **show mgmt ip tcp-statistics**
- **show mgmt ip udp-endpoints**
- **show mgmt ip udp-statistics**
- **show mgmt ip vlan**

Command Parameters

clip

Shows information specific to the management CLIP.

icmp-statistics

Shows information specific to the management interface ICMP statistics.

ip-statistics

Shows information specific to the management interface IP statistics.

oob

Shows information specific to the management OOB.

tcp-connections

Shows information specific to the management interface TCP connections.

tcp-statistics

Shows information specific to the management interface TCP statistics.

udp-endpoints

Shows information specific to the management interface UDP endpoints.

udp-statistics
Shows information specific to the management interface UDP statistics.

vlan
Shows information specific to the management VLAN.

Default

None

Command Mode

User EXEC

Usage Guidelines

The *oob* parameter only applies to hardware with a dedicated physical management interface.

show mgmt ip arp

Shows ARP information for a Segmented Management Instance.

Syntax

- **show mgmt ip arp**
- **show mgmt ip arp clip**
- **show mgmt ip arp oob**
- **show mgmt ip arp vlan**

Command Parameters

clip
Shows information specific to the management CLIP.

oob
Shows information specific to the management OOB.

vlan
Shows information specific to the management VLAN.

Default

None

Command Mode

User EXEC

show mgmt ip route

Shows operational IPv4 routes for a Segmented Management Instance.

Syntax

- **show mgmt ip route [clip] [oob] [vlan]**

Command Parameters

clip

Shows information specific to the management CLIP.

oob

Shows information specific to the management OOB.

vlan

Shows information specific to the management VLAN.

Default

None

Command Mode

User EXEC

Usage Guidelines

The *oob* parameter only applies to hardware with a dedicated physical management interface.

show mgmt ip icmp

Displays the IPv4 ICMP information for a Segmented Management Instance.

Syntax

- **show mgmt ip icmp**
- **show mgmt ip icmp clip**
- **show mgmt ip icmp oob**
- **show mgmt ip icmp vlan**

Command Parameters

clip

Displays the IPv4 ICMP information specific to the management CLIP.

oob

Displays the IPv4 ICMP information specific to the management OOB.

vlan

Displays the IPv4 ICMP information specific to the management VLAN.

Default

None

Command Mode

User EXEC

Usage Guidelines

The *oob* parameter only applies to hardware with a dedicated physical management interface.

Examples

The following example displays information of ICMP drop packet filtering for IPv4 network:

```
Switch:1>show mgmt ip icmp clip

================================================================================================

                                Mgmt IP ICMP Information.

================================================================================================

        icmp-drop-fragments             : disable
```

show mgmt ip route static

Shows IPv4 static routes for a management interface.

Syntax

- **show mgmt ip route static [clip] [oob] [vlan]**

Command Parameters

clip

Shows information specific to the management CLIP.

oob

Shows information specific to the management OOB.

vlan

Shows information specific to the management VLAN.

Default

None

Command Mode

User EXEC

Usage Guidelines

The *oob* parameter only applies to hardware with a dedicated physical management interface.

show mgmt ipv6

Shows IPv6 address information for a Segmented Management Instance.

Syntax

- **show mgmt ipv6**
- **show mgmt ipv6 clip**
- **show mgmt ipv6 icmp-statistics**
- **show mgmt ipv6 ip-statistics**
- **show mgmt ipv6 oob**
- **show mgmt ipv6 tcp-connections**
- **show mgmt ipv6 tcp-statistics**
- **show mgmt ipv6 udp-endpoints**
- **show mgmt ipv6 udp-statistics**
- **show mgmt ipv6 vlan**

Command Parameters

clip

Shows information specific to the management CLIP.

icmp-statistics

Shows information specific to the management interface ICMP statistics.

ip-statistics

Shows information specific to the management interface IP statistics.

oob

Shows information specific to the management OOB.

tcp-connections

Shows information specific to the management interface TCP connections.

tcp-statistics

Shows information specific to the management interface TCP statistics.

udp-endpoints

Shows information specific to the management interface UDP endpoints.

udp-statistics

Shows information specific to the management interface UDP statistics.

vlan

Shows information specific to the management VLAN.

Default

None

Command Mode

User EXEC

Usage Guidelines

The *oob* parameter only applies to hardware with a dedicated physical management interface.

show mgmt ipv6 icmp

Displays the IPv6 ICMP information for a Segmented Management Instance.

Syntax

- **show mgmt ipv6 icmp**
- **show mgmt ipv6 icmp clip**
- **show mgmt ipv6 icmp oob**
- **show mgmt ipv6 icmp vlan**

Command Parameters

clip

Displays the IPv6 ICMP information specific to the management CLIP.

oob

Displays the IPv6 ICMP information specific to the management OOB.

vlan

Displays the IPv6 ICMP information specific to the management VLAN.

Default

None

Usage Guidelines

The *oob* parameter only applies to hardware with a dedicated physical management interface.

Command Mode

User EXEC

Examples

The following example displays information of ICMP drop packet filtering for IPv6 network:

```
Switch:1>show mgmt ipv6 icmp clip

================================================================================================

                                Mgmt IPV6 ICMP Information.

================================================================================================

        icmp-drop-fragments             : disable
```

show mgmt ipv6 neighbor

Shows the Neighbor Discovery cache for a Segmented Management Instance.

Syntax

- **show mgmt ipv6 neighbor [clip] [oob] [vlan]**

Command Parameters

clip

Shows information specific to the management CLIP.

oob

Shows information specific to the management CLIP.

vlan

Shows information specific to the management VLAN.

Default

None

Command Mode

User EXEC

Usage Guidelines

The *oob* parameter only applies to hardware with a dedicated physical management interface.

show mgmt ipv6 route

Shows operational IPv6 routes for a Segmented Management Instance.

Syntax

- **show mgmt ipv6 route [clip] [oob] [vlan]**

Command Parameters

clip

Shows information specific to the management CLIP.

oob

Shows information specific to the management OOB.

vlan

Shows information specific to the management VLAN.

Default

None

Command Mode

User EXEC

Usage Guidelines

The *oob* parameter only applies to hardware with a dedicated physical management interface.

show mgmt ipv6 route static

Shows IPv6 static routes for a management interface.

Syntax

- **show mgmt ipv6 route static [clip] [oob] [vlan]**

Command Parameters

clip

Shows information specific to the management CLIP.

oob

Shows information specific to the management OOB.

vlan

Shows information specific to the management VLAN.

Default

None

Command Mode

User EXEC

Usage Guidelines

The *oob* parameter only applies to hardware with a dedicated physical management interface.

show mgmt migration

View the designated interface addresses selected for migration to a Segmented Management Instance.

Syntax

- **show mgmt migration**

Default

None

Command Mode

User EXEC

show mgmt rmon

Display the RMON2 configuration state of the management interface.

Syntax

- **show mgmt rmon**

Command Mode

User EXEC

Command Output

The **show mgmt rmon** command displays the following information:

Output field	Description
INST	Specifies the management instance ID.
DESCR	Specifies the interface type.
RMON-ADMIN-ENABLE	Specifies whether RMON2 is enabled on the management interface.
RMON-OPER-ENABLE	Specifies whether RMON2 is operationally enabled on the management interface, meaning that the interface itself is also enabled.
RMON-IP-ADDR	Specifies the management interface preferred IPv4 address.

Example

```
Switch:1>show mgmt rmon
================================================================================
Mgmt Rmon Information
================================================================================
INST DESCR RMON-ADMIN-ENABLE RMON-OPER-ENABLE RMON-IP-ADDR
--------------------------------------------------------------------------------
1 Mgmt-oob1 disable disable 0.0.0.0
3 Mgmt-clip enable enable 192.0.2.72
4 Mgmt-vlan enable enable 198.51.100.72
```

show mgmt statistics

View operational statistics for a Segmented Management Instance.

Syntax

- **show mgmt statistics [clip] [oob] [vlan]**

Command Parameters

clip

Shows information specific to the management CLIP.

oob

Shows information specific to the management OOB.

vlan

Shows information specific to the management VLAN.

Default

None

Command Mode

User EXEC

Usage Guidelines

The *oob* parameter only applies to hardware with a dedicated physical management interface.

show mgmt topology-ip

View topology ip address information for a Segmented Management Instance.

Syntax

- **show mgmt topology-ip**

Command Parameters

None

Default

None

Command Mode

User EXEC

show mirror-by-port

Shows mirror-by-port diagnostic information.

Syntax

- **show mirror-by-port**
- **show mirror-by-port WORD<1-1024> MirrorId List {1-479}**

Command Parameters

MirrorID List {1-479}

Displays the requested mirrors.

WORD<1-1024>

Displays mirror-by-port diagnostic information.

Default

None

Command Mode

User EXEC

show mirror-resources

Shows information about mirror resource usage.

Syntax

- **show mirror-resources**

Default

None

Command Mode

User EXEC

show mlt

Display MultiLink Trunking (MLT) information, including port type, port members and designated ports.

Syntax

- **show mlt**
- **show mlt <1-512>**

Command Parameters

<1-512>

Specifies the MLT ID. The value ranges from 1-512.

Default

None

Command Mode

User EXEC

show mlt error collision

View information about collision errors to obtain information about collision errors in the specified MLT, or for all MLTs.

Syntax

- **show mlt error collision**
- **show mlt error collision <1-512>**

Command Parameters

<1-512>

Specifies the MLT ID. The value ranges from 1-512.

Default

None

Command Mode

User EXEC

show mlt error main

View information about Ethernet errors to display information about the types of Ethernet errors sent and received by the specified MLT or all MLTs.

Syntax

- **show mlt error main**
- **show mlt error main <1-512>**

Command Parameters

<1-512>

Specifies the MLT ID. The value ranges from 1-512.

Default

None

Command Mode

User EXEC

show mlt i-sid

Display all configured service instance identifiers (I-SID) on mlt.

Syntax

- **show mlt i-sid <1-512>**

Command Parameters

<1-512>

specifies the MLT ID.

Default

None

Command Mode

User EXEC

Command Output

The **show mlt i-sid** command displays the following information:

Output field	Description
MLTID	Indicates the MLT ID.
IFINDEX	Indicates the interface index.
ISID ID	Indicates the unique I-SID value.
VLANID	Indicates the platform VLAN ID associated with the I-SID endpoint.
C-VID	Indicates the customer VLAD ID.
ISID TYPE	Indicates one of the following I-SID types: • T-UNI: Transparent Port UNI service. • ELAN: any to any service (switched service). • CVLAN: CVLAN based service.

Output field	Description
ORIGIN	Indicates the origin of the service that is associated with the I-SID interface.
ISID NAME	Indicates the name of the I-SID.
BPDU	Indicates the BPDU forward option for the untagged traffic port.

Example

The following example displays the command output.

```
Switch:1>show mlt i-sid
================================================================================
                                MLT Isid Info
================================================================================
                 ISID                      ISID                        ISID
MLTID   IFINDEX  ID     VLANID   C-VID     TYPE      ORIGIN            NAME      BPDU
--------------------------------------------------------------------------------
3       6146     3      N/A      33        ELAN      C  ---  -  ---  -  ISID-3
--------------------------------------------------------------------------------
1 out of 1 Total Num of i-sid endpoints displayed

ORIGIN Legend:
C: manually configured; D: discovered by FA or EPT
M: FA management; E: discovered by EAP; A: auto-sense
l: discover by local switch  r: discover by remote VIST switch
```

show mlt name

Displays the names of configured MLTs on the switch.

Syntax

- **show mlt name [<1-512>]**

Command Parameters

<1-512>

Displays the name of a specific MLT ID.

Default

None.

Command Mode

User EXEC

Command Output

The **show mlt name** command displays the following information:

Output field	Description
MLT ID	Displays the MLT ID.
IFINDEX	Displays the interface index.
NAME	Displays the configured name.

Example

The following example displays the name for MLT ID 2.

```
Switch:1>show mlt name 2
================================================================================================
                                        Mlt Name
================================================================================================
MLTID IFINDEX NAME
------------------------------------------------------------------------------------------------
2     6145    BN1-BN8
```

show mlt stats

View MLT statistics to display MultiLinkTrunking statistics for the switch or for the specified MLT ID.

Syntax

- **show mlt stats**
- **show mlt stats <1-512>**

Command Parameters

<1-512>

Specifies the MLT ID. The value ranges from 1-512.

Default

None

Command Mode

User EXEC

Command Output

The **show mlt stats** command displays the following information:

Output field	Description
ID IN-OCTETS	The total number of inbound octets of data (including those in bad packets).
OUT-OCTETS	The total number of outbound octets of data.
IN-UNICAST	The count of inbound Unicast packets.
OUT-UNICAST	The count of outbound unicast packets.
ID IN-MULTICAST	The count of inbound multicast packets.
OUT-MULTICAST	The count of outbound multicast packets.
IN-BROADCAST	The count of inbound broadcast packets.
OUT-BROADCAST	The count of outbound broadcast packets.
MT	The MLT type: P for POS, E for Ethernet, A for ATM.

show monitor-statistics

Display monitor timer configurations, including duration and interval.

Syntax

- **show monitor-statistics**

Default

None

Command Mode

User EXEC

show multicast software-forwarding

Show the software forwarding configuration.

Syntax

- **show multicast software-forwarding**

Default

None

Command Mode

User EXEC

show nodealias

Displays basic Node Alias information.

Syntax

- **show nodealias**

Default

The default is none.

Command Mode

User EXEC

Command Output

The **show nodealias** command displays the following information:

Output field	Description
NodeAlias is globally enabled	Displays whether Node Alias is globally enabled (TRUE) or disabled (FALSE).
Maximum Number of Clients	Displays the number of clients to be stored in the Node Alias client database on the switch.
Port List NodeAlias Enabled	Displays a list of Node Alias enabled ports.
Number of learned clients	Displays the number of clients learned on the interface.
Number of active clients	Displays the number of active clients on the interface.
Number of protocol related entries	Specifies the number protocol entries related to the active clients on the interface.

Example

The following example displays basic statistics information for Node Alias on the switch.

```
Switch:1>show nodealias

================================================================================================
              Node Alias - General Info
================================================================================================
    NodeAlias is globally enabled:                TRUE
```

```
    Maximum Number of Clients:                    8192
    Port List NodeAlias Enabled:                  1/14,1/17,2/1
    Number of learned clients:                    5
    Number of active clients:                     5
    Number of protocol related entries:           6
```

show nodealias client-info

Displays client information.

Syntax

- **show nodealias client-info [detail] [hostname] [i-sid <0-16777215>] [mac <0x00:0x00:0x00:0x00:0x00:0x00>] [mlt <1-512>] [port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}] [vlan <1-4094>]**

Command Parameters

detail

Displays detailed information related to clients.

hostname

Displays the hostname.

i-sid <0-16777215>

Displays client information for the specified I-SID.

mac <0x00:0x00:0x00:0x00:0x00:0x00>

Displays client information for the specified MAC Address.

mlt <1-512>

Display client information for the specified MLT.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Displays client information for the specified port.

vlan *<4094>*

Displays client information for the specified VLAN.

Default

The default is none.

Command Mode

User EXEC

Command Output

The **show nodealias client-info** command displays the following information:

Output field	Description
MAC-ADDRESS	Displays the source MAC address of the client.
I-SID	Displays the I-SID.
VLAN	Displays the VLAN ID.
INTERFACE	Displays the receiving interface port or MLT.
PROTOCOLS	Displays the protocol running on the client. Use the legend at the bottom of the output to explain the protocol values.
ACTIVE	Displays if the client is active (true) or inactive (false).
LAST IP ADDR LAST IPv6 ADDR	Displays the last known IPv4 or IPv6 IP address used by this client.
FIRST LEARNED TIME LAST LEARNED TIME	Displays the timestamp of the first and last time a client is learned. The switches use last learned time to remove inactive and oldest clients from the database when the maximum number of clients is reached.
HOSTNAME	Displays the client host name.
OS TYPE OS VERSION DEVICE TYPE	Displays detailed information extracted from LLDP messages, such as operating system type, operating system version, and device type, if known.

The following examples display client information for Node Alias on the switch.

Example

```
Switch:1#show nodealias client-info

================================================================================================================
                                Node Alias - Client Database
================================================================================================================


MAC-ADDRESS         I-SID     VLAN  INTERFACE  PROTOCOLS  ACTIVE LAST IP ADDR         FIRST LEARNED TIME
                                                                  LAST IPv6 ADDR       LAST LEARNED TIME
----------------------------------------------------------------------------------------------------------------
00:00:11:11:16:01   0         16    1/1        4          true   192.0.2.15           2024/06/06 12:25:30
                                                                  0:0:0:0:0:0:0:0      2024/06/06 12:26:12
00:00:11:11:26:02   0         16    1/2        4          true   192.0.2.16           2024/06/06 12:25:31
                                                                  0:0:0:0:0:0:0:0      2024/06/06 12:25:42
00:00:11:66:00:01   2         2     1/3        4BOR       false  198.51.100.2         2024/06/06 12:27:25
                                                                  0:0:0:0:0:0:0:0      2024/06/06 12:39:08
00:00:11:66:55:01   4         4     1/3        4BOR       false  198.51.100.3         2024/06/06 12:27:30
                                                                  0:0:0:0:0:0:0:0      2024/06/06 12:39:08
00:00:11:77:00:02   1002      1002  MLT-1      4BOR       true   203.0.113.23         2024/06/06 12:27:26
                                                                  0:0:0:0:0:0:0:0      2024/06/06 12:39:08
00:00:11:77:00:03   1002      1002  1/2        4R         true   203.0.113.24         2024/06/06 12:31:51
                                                                  0:0:0:0:0:0:0:0      2024/06/06 12:32:23
```

```
6 displayed out of 6 Total Num of Clients

-------------------------------------------------------------------------------------------------------
Protocols Legend: Client Capabilities
4 = IPv4,       6 = IPv6,       B = BGP,        V = VRRP,       U = UDP,
L = LLDP,       D = DHCP,       b = BPDU,       n = NON_NT_BPDU O = OSPF,
R = RIP,        l = LLMNR,      S = SSDP,       M = MDNS


Switch:1#show nodealias client-info detail

=============================================================================================================================================
                                                        Node Alias - Client Database
=============================================================================================================================================

MAC-ADDRESS         I-SID     VLAN  INTERFACE  PROTOCOLS    ACTIVE LAST IP ADDR                FIRST LEARNED TIME   HOSTNAME          OS TYPE
                                                           LAST IPv6 ADDR                LAST LEARNED TIME                      OS VERSION
                                                                                                                        DEVICE TYPE
---------------------------------------------------------------------------------------------------------------------------------------------
00:00:50:b8:ec:61   15999999  4048  1/1        61           false  0.0.0.0                      09/25/24 15:07:24
                                                                  fe80:0:0:0:bde3:2f0e:7b83:80a  09/25/24 18:06:35

40:88:2f:dc:68:81   15999999  4048  1/1        4UD          true   10.3.33.208                  09/25/24 14:40:56    A1-5420
                                                                  0:0:0:0:0:0:0:0              09/25/24 19:03:24

40:88:2f:e1:c4:81   15999999  4048  1/1        4UD          true   0.0.0.0                      09/25/24 14:41:09    FabricEngine40882fe~
                                                                  0:0:0:0:0:0:0:0              09/25/24 19:03:31

40:88:2f:e3:a0:81   15999999  4048  1/1        4UD          true   0.0.0.0                      09/25/24 14:40:18    FabricEngine40882fe~
                                                                  0:0:0:0:0:0:0:0              09/25/24 19:03:28
 4 displayed out of 426 Total Num of Clients
---------------------------------------------------------------------------------------------------------------------------------------------

Protocols Legend: Client Capabilities
4 = IPv4,       6 = IPv6,       B = BGP,        V = VRRP,       U = UDP,
L = LLDP,       D = DHCP,       b = BPDU,       n = NON_NT_BPDU O = OSPF,
R = RIP,        l = LLMNR,      S = SSDP,       M = MDNS

---------------------------------------------------------------------------------------------------------------------------------------------
DeviceType Legend:
B= Bridge,    D= DOCSIS,    O= Other,     R= Repeater,
S= Station,   T= Telephone, W= WLAN,      r= Router

Switch:1#show nodealias client-info hostname
=================================================================================================
                                      Node Alias - Client Hostname
=================================================================================================

MAC-ADDRESS         I-SID     VLAN  INTERFACE  PROTOCOLS      ACTIVE     LAST IP ADDR      HOSTNAME
-------------------------------------------------------------------------------------------------
00:00:50:b8:ec:61   15999999  4048  1/1        61             true       0.0.0.0
40:88:2f:dc:68:81   15999999  4048  1/1        4UD            true       10.3.33.208       A1-5420
40:88:2f:e1:c4:81   15999999  4048  1/1        4UD            true       0.0.0.0           FabricEngine40882felc400
40:88:2f:e3:a0:81   15999999  4048  1/1        4UD            true       0.0.0.0           FabricEngine40882fe3a000

 4 displayed out of 433 Total Num of Clients
-------------------------------------------------------------------------------------------------
Protocols Legend: Client Capabilities
4 = IPv4,       6 = IPv6,       B = BGP,        V = VRRP,       U = UDP,
L = LLDP,       D = DHCP,       b = BPDU,       n = NON_NT_BPDU O = OSPF,
R = RIP,        l = LLMNR,      S = SSDP,       M = MDNS
```

show nodealias dhcp-fingerprint

Displays DHCP fingerprint information collected stored for a DHCP client.

Syntax

- **show nodealias dhcp-fingerprint [i-sid <0-16777215>] [mac <0x00:0x00:0x00:0x00:0x00:0x00>] [mlt <1-512>] [port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}] [vlan <1-4094>]**

Default

The default is none.

Command Parameters

i-sid <0-16777215>

Displays DHCP fingerprint information for the specified I-SID.

mac <0x00:0x00:0x00:0x00:0x00:0x00>

Displays DHCP fingerprint information for the specified MAC Address.

mlt <1-512>

Displays DHCP fingerprint information for the specified MLT.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Displays DHCP fingerprint information for the specified port.

vlan <0-4094>

Displays DHCP fingerprint information for the specified VLAN.

Command Mode

User EXEC

Command Output

The **show nodealias dhcp-fingerprint** command displays the following information:

Output field	Description
MAC-ADDRESS	Displays the source MAC address.
I-SID	Displays the I-SID.
VLAN	Displays the VLAN ID.
INTERFACE	Displays the receiving interface port or MLT.

Output field	Description
CODE	Displays the DHCP Options codes the DHCP client uses, such as: • Option 12 • Option 53 • Option 55 • Option 60
VALUE	Displays the values for the DHCP client options: • Specifies the hostname of the client. • Specifies the type of the DHCP message. The DHCP client IP address displays for ACK messages. • Specifies the list of DHCP parameter options requested by the client. • Specifies the client vendor class identifier (VCI) domain name.

The following example displays DHCP fingerprint information for Node Alias clients on the switch.

Example

```
Switch:1>show nodealias dhcp-fingerprint

================================================================================
                     Node Alias - DHCP Fingerprint Info
================================================================================

MAC-ADDRESS         I-SID     VLAN  INTERFACE  CODE       VALUE
--------------------------------------------------------------------------------
00:00:00:00:00:15   0         20    cpp        12         host1
                                               53         2.2.2.2
                                               55         17,17,17,16
                                               60         extreme networks
--------------------------------------------------------------------------------
00:00:00:00:00:21   0         20    cpp        12         abracadabra
                                               53         0.0.0.0
                                               55         3
                                               60         extreme networks
--------------------------------------------------------------------------------

 2 displayed.
```

show nodealias protocol-info

Displays detailed protocol information for IPv4, IPv6, BGP, VRRP, and broadcast UDP protocols only.

Syntax

- **show nodealias protocol-info [protocol {bgp | ipv4 | ipv6 | udp | vrrp}] [mac <0x00:0x00:0x00:0x00:0x00:0x00>] [i-sid <0-16777215>] [vlan <1-4094] [port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}] [mlt <1-512>]**

Default

Command Parameters

i-sid <0-16777215>

Displays protocol information for the specified I-SID.

mac <0x00:0x00:0x00:0x00:0x00:0x00>

Displays protocol information for the specified MAC Address.

mlt <1-512>

Displays protocol information for the specified MLT.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Displays protocol information for the specified port.

protocol < bgp | ipv4 | ipv6 | udp | vrrp>

Displays specified protocol information.

vlan <0-4094>

Displays protocol information for the specified VLAN.

Command Mode

User EXEC

Command Output

The **show nodealias protocol-info** command displays the following information:

Output field	Description
MAC-ADDRESS	Specifies the source MAC address.
I-SID	Specifies the I-SID.
VLAN	Specifies the VLAN ID.
INTERFACE	Specifies the receiving port or MLT interface.
PROTOCOL	Specifies the IPv4, IPv6, BGP, VRRP, or UDP protocol type.

Output field	Description
PROTO INFO	Specifies additional details for IPv4, IPv6, BGP, VRRP, and broadcast UDP protocols: • IPv4 address • IPv6 address • BGP AS Number • Broadcast UDP source port • VRRP VR ID
LAST LEARNED TIME	Specifies the timestamp when the client was last updated on the port.

The following example displays protocol information for Node Alias clients on the switch.

Example

```
Switch:1>show nodealias protocol-info
================================================================================================================
                                        Node Alias - Protocol Info Database
================================================================================================================

MAC-ADDRESS         I-SID     VLAN  INTERFACE  PROTOCOL   PROTO INFO                  LAST LEARNED TIME
----------------------------------------------------------------------------------------------------------------
00:00:11:11:16:01   0         16    1/1        IPv4       16.1.1.1                    2024/06/06 12:26:12
00:00:11:66:00:01   2         2     1/3        IPv4       66.1.0.1                    2024/06/06 12:39:08
00:00:11:66:00:01   2         2     1/3        BGP        20                          2024/06/06 12:36:49
00:00:11:66:11:01   3         3     1/3        BGP        20                          2024/06/06 12:36:49
00:00:11:66:16:01   0         16    1/1        IPv4       16.1.1.1                    2024/06/06 12:34:10
00:00:11:66:55:01   4         4     1/3        BGP        20                          2024/06/06 12:36:49
00:00:11:77:00:02   1002      1002  MLT-1      IPv4       77.2.0.2                    2024/06/06 12:39:08
00:00:11:77:00:02   1002      1002  MLT-1      BGP        20                          2024/06/06 12:36:49
00:00:11:77:00:03   1002      1002  1/2        IPv4       77.2.0.3                    2024/06/06 12:32:23
00:00:11:77:00:03   0         2002  1/3        IPv4       77.3.0.3                    2024/06/06 12:35:08
00:00:11:77:11:02   1003      1003  MLT-1      IPv4       77.2.1.2                    2024/06/06 12:39:08
00:00:11:77:11:02   1003      1003  MLT-1      BGP        20                          2024/06/06 12:36:49
00:00:11:77:11:03   1003      1003  1/2        IPv4       77.2.1.3                    2024/06/06 12:32:28
00:00:11:77:11:03   0         2003  1/3        IPv4       77.3.1.3                    2024/06/06 12:35:09
90:e2:ba:21:7d:10   0         16    1/1        IPv6       1016:0:0:0:0:0:120d:1       2024/06/06 12:23:08
90:e2:ba:21:7d:11   0         26    1/2        IPv6       2026:0:0:0:0:0:120d:1       2024/06/06 12:23:19

 16 displayed out of 16 Total Num of Protocol-Info entries.
```

show ntp

View the Network Time Protocol (NTP) status and statistics.

Syntax

- **show ntp**
- **show ntp key**
- **show ntp restrict**
- **show ntp server [name]**
- **show ntp statistics**

Command Parameters

key

Displays NTP authentication key information.

restrict

Displays the NTP restrict information.

server [name]

Displays NTP server information.

Include the optional *name* parameter to see a list of all server names.

statistics

Displays NTP statistics information. If two host names resolve to the same IP address, only the first one displays in the output for the **show ntp statistics** command.

Default

None

Command Mode

User EXEC

show ovsdb

View the OVSDB configuration information

Syntax

- **show ovsdb configs**
- **show ovsdb controller status**
- **show ovsdb managed-interface**
- **show ovsdb replication state**

Command Parameters

configs

Displays the OVSDB configuration information.

controller status

Displays the OVSDB controller information.

managed-interface

Displays the OVSDB managed-interface information.

replication state

Displays the OVSDB replication information.

Default

None

Command Mode

User EXEC

show ptp

Displays the status of the Transparent Clock option for PTPv2.

Syntax

show ptp

Default

None

Command Mode

User EXEC

Example

The following example displays the status of the Transparent Clock option on the switch.

```
Switch:1>show ptp
================================================
                Global PTP Config
================================================
PTP Status
------------------------------------------------
Enabled
```

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine User Guide*.

show qos 802.1p-override

Display the 802.1p override status for a port or VLAN.

Syntax

- **show qos 802.1p-override [gigabitEthernet {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}] [vlan <1-4059>]**

Command Parameters

gigabitEthernet *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

vlan *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

User EXEC

show qos cosq-stats

Display the Quality of Service (QoS) egress queues statistics.

Syntax

- **show qos cosq-stats**
- **show qos cosq-stats interface [{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]**
- **show qos cosq-stats cpu-port**

Command Parameters

interface *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

loopback-port <1-2>

Shows Qos Cosq Stats on loopback port.

Default

None

Command Output

The **show qos cosq-stats** command displays the following information:

Output field	Description
Cos	Indicates the CoS queue number.
Out Packets	Indicates the out packets for the CoS queue.
Out Bytes	Indicates the out bytes for the CoS queue.
Drop Packets	Indicates the drop packets for the CoS queue.
Drop Bytes	Indicates the drop bytes for the CoS queue.

Command Mode

User EXEC

Examples

The following example displays all stats.

```
Switch:1>show qos cosq-stats interface 1/42

================================================================================
                          Port:1/42  QOS CoS Queue Stats
================================================================================
CoS  Out Packets          Out Bytes            Drop Packets         Drop Bytes
--------------------------------------------------------------------------------
0    0                    0                    0                    0
1    0                    0                    0                    0
2    0                    0                    0                    0
3    0                    0                    0                    0
4    0                    0                    0                    0
5    0                    0                    0                    0
6    0                    0                    0                    0
```

```
7    0                    0                    0                    0
Switch:1#
```

show qos cosq-stats cpu-port

Display the Quality of Service (QoS) egress queues statistics for the CPU port to display the statistics of the forwarded packets and bytes, and the dropped packets and bytes, for the traffic sent toward the CP. The queue assignment is based on the protocol types, not on the internal COS value. These statistics are useful for debugging purposes.

Syntax

- **show qos cosq-stats cpu-port**

Default

None

Command Mode

User EXEC

Command Output

The **show qos cosq-stats cpu-port** command displays the following information:

Output field	Description
Cos	Indicates the CoS queue number.
Out Packets	Indicates the out packets for the CoS queue.
Out Bytes	Indicates the out bytes for the CoS queue.
Drop Packets	Indicates the drop packets for the CoS queue.
Drop Bytes	Indicates the drop bytes for the CoS queue.

Examples

The following examples display output for the **show qos cosq-stats cpu-port** command.

```
Switch:1>show qos cosq-stats cpu-port
================================================================================================
                      QOS CoS Queue Cpu Port Stats Table
================================================================================================
CoS   Out Packets          Out Bytes            Drop Packets         Drop Bytes
------------------------------------------------------------------------------------------------
0     3670                 254978               0                    0
1     41839                2886814              0                    0
2     0                    0                    0                    0
3     765                  52020                0                    0
```

```
4     130                 14552               0                   0
5     0                   0                   0                   0
6     14418               2766226             0                   0
7     20727               1876222             0                   0
8     15941               2074921             0                   0
9     1246091             84734188            17168               1133080
10    32314               5483005             0                   0
11    396323              26949964            4990                319376
12    195649              16583033            0                   0
13    426754              53924425            0                   0
14    0                   0                   0                   0
15    0                   0                   0                   0
```

show qos egressmap

Display the Quality of Service (QoS) egress mappings.

Syntax

- **show qos egressmap**
- **show qos egressmap 1p**
- **show qos egressmap 1p <0-7>**
- **show qos egressmap ds**
- **show qos egressmap ds <0-7>**

Command Parameters

1p <0-7>

Displays the QoS level to IEEE 802.1p priority mapping.

ds <0-7>

Displays the QoS level to DS byte mapping.

Default

None

Command Mode

User EXEC

show qos ingressmap

Ensure the accuracy of the ingress configuration.

Syntax

- **show qos ingressmap**
- **show qos ingressmap 1p**

- **show qos ingressmap 1p <0-7>**
- **show qos ingressmap ds**
- **show qos ingressmap ds <0-63>**

Command Parameters

1p <0-7>

Show IEEE 1p to Qos level mapping

ds <0-63>

ShowDS Byte to Qos level mapping

Default

None

Command Mode

User EXEC

show qos queue-profile

Displays the queue profile.

Syntax

- **show qos queue-profile <1-5> queue <0-7>**
- **show qos queue-profile <1-5> queue all**

Command Parameters

<0-7>

Specifies the queue identifier.

<1-5>

Displays the qos queue parameter settings for the specified queue profile ID.

all

Displays the qos queue parameter settings for all queues.

queue

Displays the qos queue parameter settings for specified queue profile ID.

Default

None

Command Mode

User EXEC

show qos shaper

Display egress rate-limiting information for an interface.

Syntax

- **show qos shaper interface gigabitEthernet**
- **show qos shaper interface gigabitethernet [{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]**

Command Parameters

interface gigabitEthernet *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

User EXEC

show radius

Display the global status of Remote Access Dial-In User Services (RADIUS) information.

Syntax

- **show radius**

Default

None

Command Mode

User EXEC

Command Output

The **show radius** command displays the following information:

Output field	Description
acct-attribute-value	Specifies the accounting attribute value.
acct-enable	Specifies if the accounting attribute is enabled.
acct-include-cli-commands	Specifies if the accounting attribute includes CLI commands. The default is false.
access-priority-attribute	Specifies the value of the access priority attribute. The default is 192.
auth-info-attr-value	Specifies the value of the authentication information attribute. The default is 91.
command-access-attribute	Specifies the value of the command access attribute. The default is 194.
cli-commands-attribute	Specifies the value of the CLI commands attribute. The default is 195.
cli-cmd-count	Specifies how many CLI commands before the system sends a RADIUS accounting interim request. The default is 40.
cli-profile-enable	Specifies if RADIUS CLI profiling is enabled. CLI profiling grants or denies access to users being authenticated by way of the RADIUS server. You can add a set of CLI commands to the configuration on the RADIUS server, and you can specify the command-access mode for these commands. The default is false.
enable	Specifies if RADIUS authentication is globally enabled on the switch.
igap-passwd-attr	Specifies the IGMP for user Authentication Protocol (IGAP) password attribute.
igap-timeout-log-fsize	Specifies the IGMP for user Authentication Protocol (IGAP) timeout log file size.
maxserver	Specifies the maximum number of servers allowed for the device. The default is 10.
mcast-addr-attr-value	Specifies the value of the multicast address attribute. The default is 90.
secure-flag	Specifies whether RADIUS Security (RADSec) is globally enabled. The default is disabled.

show radius dynamic-server

Display configuration or statistical information about RADIUS dynamic session clients.

Syntax

- **show radius dynamic-server [client WORD<0-255>] [statistics]**

Command Parameters

statistics

Display statistics for RADIUS Dynamic Authorization clients.

WORD<0-255>

Specifies the client address or FQDN.

Default

None

Command Mode

User EXEC

Examples

The **show radius dynamic-server** command displays the following information:

```
Switch:1>show radius dynamic-server

================================================================================================
                        RADIUS Dynamic Authorization General Info
================================================================================================
CLIENT                 RESOLVED          UDP        CLIENT     SECRET
ADDRESS                ADDRESS           PORT       ENABLED    KEY
------------------------------------------------------------------------------------------------
192.0.2.15                               1026       Disabled   ****************
192.0.2.16                               1027       Disabled   ****************
host.example.com                         3799       Enabled    ****************
------------------------------------------------------------------------------------------------

All 2 out of 2 Total Num of RADIUS Dynamic Authorization clients displayed
```

The following output displays dynamic server statistics:

```
Switch:1>show radius dynamic-server statistics

================================================================================
                RADIUS Dynamic Authorization Global Statistics
================================================================================
Disconnects From Invalid Client Addresses:     0
CoAs From Invalid Client Addresses:            0
--------------------------------------------------------------------------------
```

show radius reachability

Display the RADIUS server reachability settings.

Syntax

- **show radius reachability**

Default

None

Command Mode

User EXEC

show radius snmp

Display the global status of Remote Access Dial-In User Services (RADIUS) information.

Syntax

- **show radius snmp**

Default

None

Command Mode

User EXEC

show radius secure-profile

Display information about RADIUS secure profiles.

Syntax

- **show radius secure-profile**

Default

None

Command Mode

User EXEC

Command Output

The **show radius secure-profile** command displays the following information:

Example

```
Switch:1>show radius secure-profile
==========================================================================
                     Secure RADIUS profile
==========================================================================
    Profile default:
             Name : default
         RootCert : n/a
             Cert : n/a
              Key : n/a
         Password : ******
```

show radius-server

Display the Remote Access Dial-In User Services (RADIUS) server information.

Syntax

- **show radius-server**

Default

None

Command Mode

User EXEC

Command Output

The **show radius-server** command displays the following information:

Output field	Description
NAME	Specifies the RADIUS server name.
USEDBY	Specifies how the server functions. Configures the server for authentication for one of the following:cli • cli • eapol • endpoint-tracking • snmp • web
SECRET	Specifies the secret key.

Output field	Description
PORT	Specifies the RADIUS server UDP port.
PRIO	Specifies the RADIUS server priority.
RETRY	Specifies the maximum number of authentication retries. The default is 3.
TIMEOUT	Specifies the number of seconds before the authentication request times out. The default is 3.
ENABLED	Specifies whether the RADIUS server is enabled.
SECURE ENABLED	Specifies whether RADSec is enabled on the RADIUS server.
SECURE MODE	Specifies the protocol used for secure connection with the server. Possible values are: • tls - Transport Layer Security (TLS) encryption over Transmission Control Protocol (TCP) • dtls - Datagram Transport Layer Security (DTLS) encryption over User Datagram Protocol (UDP) The default is tls.
SECURE INSTANCE	Specifies the radsecproxy instance. The default is -1 (the RADIUS server is not configured for RADSec).
SECURE PROFILE	Specifies the secure profile associated with the RADIUS server.
SECURE LOG-LEVEL	Specifies the secure log level. Possible values are: • critical • debug • error • info • warning
SECURE OCSP	Specifies whether RADIUS Online Certificate Status Protocol (OCSP) checking is enabled or disabled for this server. The default is disabled.
ACCT PORT	Specifies the RADIUS accounting UDP port.
ACCT ENABLED	Specifies whether RADIUS accounting is enabled.

Example

The following example displays RADIUS server information:

```
Switch:1>show radius-server
================================================================================
                                Radius Server Entries
================================================================================
                                                                SECURE  SECURE SECURE   SECURE   SECURE     SECURE  ACCT
ACCT
NAME           USEDBY  SECRET PORT PRIO RETRY TIMEOUT ENABLED ENABLED MODE   INSTANCE PROFILE  LOG-LEVEL  OCSP    PORT
ENABLED
--------------------------------------------------------------------------------------------------------------------------------
------
192.0.2.14     cli     ****** 1812 10   1     8       true    true    tls    0        radsecp  error      false   1813
true
192.0.2.15     cli     ****** 1812 10   1     8       true    false   tls    -1       default  error      false   1813
true
```

show radius-server statistics

Display current Remote Access Dial-In User Services (RADIUS) server configurations.

Syntax

- **show radius-server statistics**

Default

None

Command Mode

User EXEC

Command Output

The **show radius-server statistics** command displays the following information:

Output field	Description
Radius Server(UsedBy)	The address or FQDN of the RADIUS server.
Access Requests	Specifies the number of access-response packets sent to the server; it does not include retransmissions.
Access Accepts	Specifies the number of access-accept packets, valid or invalid, received from the server.
Access Rejects	Specifies the number of access-reject packets, valid or invalid, received from the server.
Bad Responses	Specifies the number of invalid access-response packets received from the server.
Client Retries	Specifies the number of authentication retransmissions to the server.

Output field	Description
Pending Requests	Specifies the number of access-request packets sent to the server that have not yet received a response, or have timed out.
Acct On Requests	Specifies the number of accounting On requests sent to the server.
Acct Off Requests	Specifies the number of accounting Off requests sent to the server.
Acct Start Requests	Specifies the number of accounting Start requests sent to the server.
Acct Stop Requests	Specifies the number of accounting Stop requests sent to the server.
Acct Interim Requests	Specifies the number of accounting Interim Requests sent to the server. The AcctInterimRequests counter increments only if the parameter acctinclude- cli-commands is set to true.
Acct Bad Responses	Specifies the number of Invalid Responses from the server that are discarded.
Acct Pending Requests	Specifies the number of requests waiting to be sent to the server.
Acct Client Retries	Specifies the number of retries made to this server.
Access Challenges	Shows the number of RADIUS access-challenges packets sent to this server. This does not include retransmission.
Round-trip Time	Shows the time difference between the instance when a RADIUS request is sent and the corresponding response is received.
Nas Ip Address	Shows the RADIUS client Network Access Server (NAS) identifier for this server.

Example

The following example displays RADIUS server statistics information:

```
Switch:1>show radius-server statistics

Responses with invalid server address: 0

Radius Server(UsedBy) : 192.0.2.14(cli)
-----------------------------------------------------
         Access Requests : 2
          Access Accepts : 1
          Access Rejects : 0
           Bad Responses : 1
          Client Retries : 1
        Pending Requests : 0
        Acct On Requests : 0
       Acct Off Requests : 0
     Acct Start Requests : 0
      Acct Stop Requests : 0
   Acct Interim Requests : 0
      Acct Bad Responses : 0
   Acct Pending Requests : 0
```

```
     Acct Client Retries : 0
       Access Challenges : 0
         Round-trip Time :
          Nas Ip Address : 192.0.2.20


   Radius Server(UsedBy) : 192.0.2.15(cli)
-------------------------------------------------------
         Access Requests : 1
          Access Accepts : 0
          Access Rejects : 0
           Bad Responses : 0
          Client Retries : 0
        Pending Requests : 1
        Acct On Requests : 0
       Acct Off Requests : 0
     Acct Start Requests : 0
      Acct Stop Requests : 0
   Acct Interim Requests : 0
      Acct Bad Responses : 0
   Acct Pending Requests : 0
     Acct Client Retries : 0
       Access Challenges : 0
         Round-trip Time :
          Nas Ip Address : 192.0.2.20
```

show rate-limit

Displays the Storm Control polling interval configuration.

Syntax

- **show rate-limit**

Default

None

Command Mode

User EXEC

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

Command Output

The **show rate-limit** command displays the following information:

Output field	Description
Rate Limit Poll Interval	Displays the configured interval, in seconds, at which Storm Control checks the hardware counters for packets dropped because they exceeded the configured port rate limit.

Example

The following example displays the configured poll interval.

```
Switch:1>show rate-limit
================================================================================
                                  RATE LIMIT
================================================================================
Rate Limit Poll Interval (seconds):10
```

show rmon address-map

View Remote Network Monitoring (RMON) settings to see the maps of network layer address to physical address to interface.

Syntax

- **show rmon address-map**

Command Parameters

address-map

Displays the RMON control tables on the switch.

Default

None

Command Mode

User EXEC

Command Output

The **show rmon address-map** command displays the following information:

Output field	Description
PROTOIDX	Shows a unique identifier for the entry in the table.
HOSTADDR	Shows the network address for this entry. The format of the value depends on the protocol portion of the local index.
SOURCE	Shows the interface or port on which the network address was most recently seen.
PHYADDR	Shows the physical address on which the network address was most recently seen.
LASTCHANGE	Shows when the entry was created or last changed. If this value changes frequently, it can indicate duplicate address problems.

Example

The following example displays the RMON address map table on the switch.

```
Switch:1>show rmon address-map
================================================================================
                             Rmon Address Map Table
================================================================================
PROTOIDX  HOSTADDR         SOURCE  PHYADDR            LASTCHANGE
--------------------------------------------------------------------------------
1         192.0.2.11        3     b0:ad:aa:42:a5:03  05/04/21 08:20:13
```

show rmon alarm

View Remote Network Monitoring (RMON) settings to see information about alarms entries on the switch.

Syntax

- **show rmon alarm**

Command Parameters

alarm

Displays RMON alarm table on the switch.

Default

None

Command Mode

User EXEC

Command Output

The **show rmon alarm** command displays the following information:

Output field	Description
ID	Uniquely identifies an entry in the alarm table. Each entry defines a diagnostic sample at a particular interval for an object on the device. The default is 1
INTVAL	Specifies the interval, in seconds, over which the data is sampled and compared with the rising and falling thresholds. deltaValue sampling— Configures the interval short enough that the sampled variable is unlikely to increase or decrease by more than 2^31–1 during a single sampling interval.
VARIABLE	Specifies the object identifier of the particular variable to be sampled. Only variables that resolve to an ASN.1 primitive type of INTEGER (INTEGER, Counter, Gauge, or TimeTicks) can be sampled. Alarm variables exist in three formats, depending on the type: • A chassis, power supply, or fan-related alarm ends in x where the x index is hard-coded. No further information is required. • A card, spanning tree group (STG), or EtherStat alarm ends with a dot (.). You must enter a card number, STG ID, IP address, or EtherStat information. • A port alarm ends with no dot or index and requires that you use the port shortcut menu. An example of a port alarm is ifInOctets (interface incoming octet count). Because the system articulates SNMP access control entirely in terms of the contents of MIB views, no access control mechanism exists to restrict the value of this object to identify only those objects that exist in a particular MIB view. Because no acceptable means of restricting the read access that is obtained through the alarm mechanism exists, the probe must grant only write access to this object in those views that have read access to all objects on the probe. After you configure a variable, if the supplied variable name is not available in the selected MIB view, the system returns a badValue error. After the variable name of an established alarmEntry is no longer available in the selected MIB view, the probe changes the status of this alarmEntry to invalid. You cannot modify this object if the associated alarmStatus object is equal to valid

Output field	Description
VALUE	Specifies the value of the statistic during the last sampling period. For example, if the sample type is deltaValue, this value is the difference between the samples at the beginning and end of the period. If the sample type is absoluteValue, this value is the sampled value at the end of the period. This system compares the value with the rising and falling thresholds. The value during the current sampling period is not made available until the period is completed and remains available until the next period is complete.
SAMPLE TYPE	Specifies the method of sampling the selected variable and calculating the value to be compared against the thresholds. If the value of this object is absoluteValue, the value of the system compares the selected variable directly with the thresholds at the end of the sampling interval. If the value of this object is deltaValue, the system subtracts the value of the selected variable at the last sample from the current value, and the system compares the difference with the thresholds. You cannot modify this object if the associated alarmStatus object is equal to valid. The default is deltaValue
STARTUP ALARM	Specifies the alarm that is sent after this entry is first set to valid. If the first sample after this entry becomes valid is greater than or equal to the risingThreshold and alarmStartupAlarm is equal to the risingAlarm or the risingOrFallingAlarm, then the system generates a single rising alarm. If the first sample after this entry becomes valid is less than or equal to the fallingThreshold and alarmStartupAlarm is equal to the fallingAlarm or the risingOrFallingAlarm, then the system generates a single falling alarm. You cannot modify this object if the associated alarmStatus object is equal to valid.
RISING THRESHOLD	Specifies a threshold for the sampled statistic. After the current sampled value is greater than or equal to this threshold, and the value at the last sampling interval was less than this threshold, the system generates a single event. The system also generates a single event if the first sample after this entry becomes valid is greater than or equal to this threshold and the associated alarmStartupAlarm is equal to risingAlarm or risingOrFallingAlarm. After a rising event is generated, another such event is not generated until the sampled value falls below this threshold and reaches the alarmFallingThreshold. You cannot modify this object if the associated alarmStatus object is equal to valid.

Output field	Description
EVENT INDEX	Specifies the index of the eventEntry that is used after a rising threshold and a falling threshold is crossed. The eventEntry identified by a particular value of this index is the same as identified by the same value of the eventIndex object. If no corresponding entry exists in the eventTable, no association exists. In particular, if this value is zero, the system generates no associated event, as zero is not a valid event index. You cannot modify this object if the associated alarmStatus object is equal to valid. **Note:** You must create the event prior to associating it to an alarm.
FALLING THRESHOLD	Specifies a threshold for the sampled statistic. If the current sampled value is less than or equal to this threshold, and the value at the last sampling interval was greater than this threshold, the system generates a single event. The system also generates a single event if the first sample after this entry becomes valid is less than or equal to this threshold and the associated alarmStartupAlarm is equal to fallingAlarm or risingOrFallingAlarm. After the system generates a falling event, the system does not generate another similar event until the sampled value rises above this threshold and reaches the alarmRisingThreshold. You cannot modify this object if the associated alarmStatus object is equal to valid.
OWNER	Specifies the entity that configured this entry and is therefore using the resources assigned to it.

Example

The following example displays the RMON alarm entries.

```
Switch:1>show rmon alarm
================================================================================
                                Rmon Alarm
================================================================================
                                                                  SAMPLE
 ID     INTVAL    VARIABLE                        VALUE          TYPE
--------------------------------------------------------------------------------
 4      10        rcCliNumAccessViolations.0      0             absolute
--------------------------------------------------------------------------------
 STARTUP       RISING       EVENT         FALLING      EVENT
 ALARM         THRESHOLD    INDEX         THRESHOLD    INDEX      OWNER
--------------------------------------------------------------------------------
 rising        2            60534         0            0          cli
```

show rmon application-host-stats

View Remote Network Monitoring (RMON) application host statistics to see traffic statistics by application protocol for each host on the switch.

Syntax

- **show rmon application-host-stats <tcp | udp | ftp | ssh | telnet | http | rlogin | tftp | snmp | https>**

Command Parameters

tcp

Display TCP application host statistics to manage network performance on the switch.

udp

Display UDP application host statistics to manage network performance on the switch.

ftp

Display FTP application host statistics to manage network performance on the switch.

ssh

Display SSH application host statistics to manage network performance on the switch.

telnet

Display TELNET application host statistics to manage network performance on the switch.

http

Display HTTP application host statistics to manage network performance on the switch.

rlogin

Display rlogin application host statistics to manage network performance on the switch.



Note

RMON2 can count application packets received on a platform, even if the application is not enabled or supported, before dropping them.

tftp

Display TFTP application host statistics to manage network performance on the switch.

snmp

Display SNMP application host statistics to manage network performance on the switch.

https

Display HTTPS application host statistics to manage network performance on the switch.

Default

None

Command Mode

User EXEC

Usage Guidelines

Protocols displayed by the **show rmon application-host-stats** command vary across hardware models..

Command Output

The **show rmon application-host-stats** command displays the following information:

Output field	Description
HOSTADDR	Shows the network address for this entry. The format of the value depends on the protocol portion of the local index.
INPKT	Shows the number of packets for this protocol type, without errors, transmitted to this address. This value is the number of link-layer packets so a single, fragmented network-layer packet can increment the counter several times.
OUTPKT	Shows the number of packets for this protocol type, without errors, transmitted by this address. This value is the number of link-layer packets so a single, fragmented network-layer packet can increment the counter several times.
INOCT	Shows the number of octets transmitted to this address, excluding octets in packets that contained errors. This value counts octets in the entire packet that contained the protocol, not just the particular protocol frames.
OUTOCT	Shows the number of octets transmitted by this address, excluding octets in packets that contained errors. This value counts octets in the entire packet that contained the protocol, not just the particular protocol frames.
CREATETIME	Shows when the entry was last activated.

Example

The following example displays application host statistics protocol on the switch.

```
Switch:1>show rmon application-host-stats ftp
=========================================================================
                  Rmon Application Host Stats
=========================================================================
```

```
HOSTADDR    INPKT   OUTPKT   INOCT   OUTOCT   CREATETIME
-------------------------------------------------------------------------
192.0.2.10   0       0       0        0      10/09/15 17:29:54
```

show rmon ctl-table

View Remote Network Monitoring (RMON) control tables to see the data source for both network layer and application layer host statistics.

Syntax

- **show rmon ctl-table**

Default

None

Command Mode

User EXEC

Command Output

The **show rmon ctl-table** command displays the following information:

Output field	Description
IDX	Shows a unique identifier for the entry in the table.
PROTOCOL	Shows the protocols RMON2 can monitor: **Note:** RMON2 can count application packets received on a platform, even if the application is not enabled or supported, before dropping them. • Internet Protocol (IP) • Transmission Control Protocol (TCP) • User Datagram Protocol (UDP) • File Transfer Protocol (FTP) • Secure Shell version 2 (SSHv2) • Telnet • Hypertext Transfer Protocol (HTTP) • Remote login (rlogin) • Trivial File Transfer Protocol (TFTP) • Simple Networking Management Protocol (SNMP) • Hypertext Transfer Protocol Secure (HTTPS)

Output field	Description
ADDRMAPCFG	Describes and configures the probe support for the network layer and application layer host tables for this protocol. The value can be one of the following: • NOT SUPPORTED • SUPPORTED OFF • SUPPORTED ON If the value is SUPPORTED ON, the probe adds entries to the address map table that maps the network layer address to the MAC layer address.
HOSTCFG	Describes and configures the probe support for the network layer and application layer host tables for this protocol. The value can be one of the following: • NOT SUPPORTED • SUPPORTED OFF • SUPPORTED ON If the value is SUPPORTED ON, the probe adds entries to the Host Control table to collect statistics for network layer and application layer hosts.
MATRIXCFG	Describes and configures the probe support for the network layer and application layer host tables for this protocol. The value can be one of the following: • NOT SUPPORTED • SUPPORTED OFF • SUPPORTED ON
OWNER	Shows the entity that configured this entry.
DATASOURCE	Shows the source of data for the entry.
DROPFRAMES	Shows the total number of frames that the probe receives and drops. This value does not include packets that were not counted because they had MAC-layer errors.
CREATETIME	Shows when the entry was last activated.
NHDROPFRAMES	Shows the total number of network host frames that the probe receives and drops. This value does not include packets that were not counted because they had MAC-layer errors.
AHDROPFRAMES	Shows the total number of application layer host frames that the probe receives and drops. This value does not include packets that were not counted because they had MAC-layer errors.

Example

The following example displays the RMON control table entries.

```
Switch:1>show rmon ctl-table
================================================================================
                              Rmon Control Table
================================================================================
```

```
================================================================================
                            Protocol Directory Table
================================================================================
IDX  PROTOCOL  ADDRMAPCFG  HOSTCFG    MATRIXCFG     OWNER
--------------------------------------------------------------------------------
1    IP        SUPPORTED   SUPPORTED  NOT SUPPORTED  VSP
2    TCP       SUPPORTED   SUPPORTED  NOT SUPPORTED  VSP
3    UDP       SUPPORTED   SUPPORTED  NOT SUPPORTED  VSP
4    FTP       SUPPORTED   SUPPORTED  NOT SUPPORTED  VSP
5    SSH       SUPPORTED   SUPPORTED  NOT SUPPORTED  VSP
6    TELNET    SUPPORTED   SUPPORTED  NOT SUPPORTED  VSP
7    HTTP      SUPPORTED   SUPPORTED  NOT SUPPORTED  VSP
8    RLOGIN    SUPPORTED   SUPPORTED  NOT SUPPORTED  VSP
9    TFTP      SUPPORTED   SUPPORTED  NOT SUPPORTED  VSP
10   SNMP      SUPPORTED   SUPPORTED  NOT SUPPORTED  VSP
11   HTTPS     SUPPORTED   SUPPORTED  NOT SUPPORTED  VSP

================================================================================
                      Protocol Distribution Control Table
================================================================================
IDX  DATASOURCE       DROPFRAMES  CREATETIME         OWNER
--------------------------------------------------------------------------------
1    0.0.0.0          0           04/22/21 05:00:41   VSP

================================================================================

                       Address Map Control Table
================================================================================
IDX  DATASOURCE       DROPFRAMES  OWNER
--------------------------------------------------------------------------------
1    0.0.0.0          0           VSP

================================================================================
                                Host Control Table
================================================================================
IDX  DATASOURCE       NHDROPFRAMES  AHDROPFRAMES  OWNER
--------------------------------------------------------------------------------

1    0.0.0.0          0             0             VSP
```

show rmon event

View Remote Network Monitoring (RMON) event entries on the switch.

Syntax

- **show rmon event**

Command Parameters

event

Displays RMON event entries on the switch.

Default

None

Command Mode

User EXEC

Command Output

The **show rmon event** command displays the following information:

Output field	Description
INDEX	Uniquely identifies an entry in the event table. Each entry defines one event that the system generates after the appropriate conditions occur. The default is 1.
DESCRIPTION	Specifies a comment that describes this event entry.
TYPE	Specifies the type of notification that the probe makes about this event. In the case of a log, the system makes an entry in the log table for each event. In the case of SNMP traps, the system sends an SNMP trap to one or more management stations.
COMMUNITY	Specifies the SNMP community where you can send SNMP traps.
LAST_TIME_SENT	Specifies the value of sysUpTime at the time this event entry last generated an event. If this entry has not generated events, this value is zero.
OWNER	Specifies the entity that configured this entry and is therefore using the assigned resources. If this object contains a string starting with monitor and has associated entries in the log table, all connected management stations retrieve those log entries, as they have significance to all management stations connected to this device.

Example

The following example displays the RMON event entries.

```
Switch:1>show rmon event
================================================================================
                              Rmon Event
================================================================================
INDEX   DESCRIPTION    TYPE         COMMUNITY  OWNER         LAST_TIME_SENT
--------------------------------------------------------------------------------
60534  Rising Event   log-and-trap public     192.0.2.155   none
60535  Falling Event  log-and-trap public     192.0.2.155   8 day(s),19:14:32
```

show rmon history

View Remote Network Monitoring (RMON) history entries on the switch.

Syntax

- **show rmon history**

Command Parameters

history

Displays RMON history entries on the switch.

Default

None

Command Mode

User EXEC

Command Output

The **show rmon history** command displays the following information:

Output field	Description
INDEX	Specifies an index that uniquely identifies an entry in the historyControl table. Each entry defines a set of samples at a particular interval for an interface on the device. Index value ranges from 1–65535. The default value is 1.
PORT	Identifies the source for which the system collects and places historical data in a media-specific table on behalf of this historyControlEntry. The source is an interface on this device. To identify a particular interface, the object identifies the instance of the ifIndex object, defined in (4,6), for the desired interface. For example, if an entry receives data from interface 1, the object isifIndex 1. The statistics in this group reflect all packets on the local network segment attached to the identified interface. You cannot modify this object if the associated historyControlStatus object is equal to valid(1).
BUCKET_REQUEST	Specifies the requested number of discrete time intervals over which the system save data in the part of the media-specific table associated with this historyControlEntry. After this object is created or modified, the probe configures historyControlBucketsGranted as closely to this object as possible for the particular probe implementation and available resources. The value ranges from 1–65535. The default value is 50.

Output field	Description
BUCKET_GRANTED	Specifies the number of discrete sampling intervals over which the system save data in the part of the media-specific table associated with this historyControlEntry. After the associated BucketsRequested object is created or modified, the probe sets this object as closely to the requested value as possible for the particular probe implementation and available resources. The probe must not lower this value except as a result of a modification to the associated BucketsRequested object. Occasionally, the actual number of buckets associated with this entry is less than the value of this object. In this case, at the end of each sampling interval, the system adds a new bucket to the media-specific table. After the number of buckets reaches the value of this object and the system is going to add a new bucket to the media-specific table, the agent deletes the oldest bucket associated with this entry so the system can added the new bucket. After the value of this object changes to a value less than the current value, entries are deleted from the media-specific table associated with this entry. The agent deletes the oldest of these entries so that their number remains less than or equal to the new value of this object. After the value of this object changes to a value greater than the current value, the system allows the number of associated media-specific entries to grow.
INTERVAL	Specifies the interval in seconds over which the system samples data for each bucket in the part of the media-specific table associated with this historyControlEntry. You can set this interval between 1–3600 seconds (1 hour). Because the counters in a bucket can overflow at their maximum value with no indication, you must take into account the possibility of overflow in all of the associated counters. Consider the minimum time in which a counter can overflow on a particular media type, and then set the historyControlInterval object to a value less than this interval, which is typically most important for the octets counter in a media-specific table. For example, on an Ethernet network, the etherHistoryOctets counter can overflow in approximately 1 hour at the maximum utilization. You cannot modify this object if the associated historyControlStatus object is equal to valid. The default value is 1800.
OWNER	Specifies the entity that configured this entry and uses the assigned resources.

Example

The following example displays the RMON history control entries.

```
Switch:1>show rmon history
================================================================================
                           Rmon Control-History
================================================================================
```

```
INDEX PORT     BUCKET_REQUEST  BUCKET_GRANTED  INTERVAL OWNER
-------------------------------------------------------------------------
2     1/2      50              50              200      Test
-------------------------------------------------------------------------
```

show rmon log

View Remote Network Monitoring (RMON) log entries.

Syntax

- **show rmon log**

Command Parameters

log

Displays RMON logs on the switch.

Default

None

Command Mode

User EXEC

Command Output

The **show rmon log** command displays the following information:

Output field	Description
INDEX	Specifies an index that uniquely identifies an entry in the log table generated by the same event entries.
EVENT INDEX	Specifies an index that uniquely identifies an entry in the event table. Each entry defines one event that is generated under appropriate conditions.
TIME	Specifies the creation time for this log entry.
DESCRIPTION	Specifies an implementation dependent description of the event that activated this log entry.

Example

The following example displays the RMON log information.

```
Switch:1>show rmon log
================================================================================
                                Rmon Log
================================================================================
```

```
INDEX  EVENT INDEX        TIME                    DESCRIPTION
-------------------------------------------------------------------------------
1      60535     8 day(s), 19:14:45    1.3.6.1.4.1.2272.1.19.14.0 (absValue = 0, Falling
                                       Threshold = 2, interval = 10)[alarmIndex.1][trap]
                                            "Falling Event"
2      60535     8 day(s), 19:14:45    1.3.6.1.4.1.2272.1.19.14.0 (absValue = 0, Falling
                                       Threshold = 1, interval = 10)[alarmIndex.2][trap]
                                          "Falling Event"
```

show rmon network-host-stats

View Remote Network Monitoring (RMON) network host statistics to see Layer 3 traffic statistics for each host. The network layer host MIB monitors traffic packets in and out of hosts based on the network layer address.

Syntax

- **show rmon network-host-stats**

Command Parameters

network-host-stats

Displays RMON network host statistics on the switch.

Default

None

Command Mode

User EXEC

Command Output

The **show rmon network-host-stats** command displays the following information:

Output field	Description
HOSTADDR	Shows the host address for this entry.
INPKT	Shows the number of packets without errors transmitted to this address. This value is the number of link-layer packets so a single, fragmented network-layer packet can increment the counter several times.
OUTPKT	Shows the number of packets without errors transmitted by this address. This value is the number of link-layer packets so a single, fragmented network-layer packet can increment the counter several times.

Output field	Description
INOCT	Shows the number of octets transmitted to this address, excluding octets in packets that contained errors. This value counts octets in the entire packet that contained the protocol, not just the particular protocol frames.
OUTOCT	Shows the number of octets transmitted by this address, excluding octets in packets that contained errors. This value counts octets in the entire packet that contained the protocol, not just the particular protocol frames.
CREATETIME	Shows when the entry was last activated.

Example

The following example displays the RMON network host statistics entries.

```
Switch:1>show rmon network-host-stats
================================================================================
                            Rmon Network Host Stats
================================================================================
HOSTADDR          INPKT      OUTPKT     INOCT      OUTOCT     CREATETIME
--------------------------------------------------------------------------------
192.0.2.10      107699     105658     6462728    11464146   05/04/21 08:20:13
```

show rmon protocol-dist-stats

View Remote Network Monitoring (RMON) protocol distribution statistics to see traffic statistics that each protocol generates by local area network (LAN) segment.

Syntax

- **show rmon protocol-dist-stats**

Default

None

Command Mode

User EXEC

Command Output

The **show rmon protocol-dist-stats** command displays the following information:

Output field	Description
PROTOCOL	Shows the protocols RMON2 can monitor: **Note:** RMON2 can count application packets received on a platform, even if the application is not enabled or supported, before dropping them. • Internet Protocol (IP) • Secure Shell version 2 (SSHv2) • Transmission Control Protocol (TCP) • User Datagram Protocol (UDP) • File Transfer Protocol (FTP) • Hypertext Transfer Protocol (HTTP) • Telnet • Remote login (rlogin) • Trivial File Transfer Protocol (TFTP) • Simple Networking Management Protocol (SNMP) • Hypertext Transfer Protocol Secure (HTTPS)
PKTS	Shows the number of packets without errors received for this protocol type. This value is the number of link-layer packets so a single, fragmented network-layer packet can increment the counter several times.
OCTETS	Shows the number of octets in packets received for this protocol type since it was added to the table. This value does not include octets in packets that contained errors. This value counts octets in the entire packet that contained the protocol, not just the particular protocol frames.

Example

The following example displays the RMON protocol distribution statistics on the switch.

```
Switch:1>show rmon protocol-dist-stats
================================================================================
                            Rmon Protocol Dist Stats
================================================================================
PROTOCOL  PKTS       OCTETS
--------------------------------------------------------------------------------
IP        0          0
TCP       0          0
UDP       0          0
FTP       0          0
SSH       0          0
TELNET    0          0
HTTP      0          0
RLOGIN    0          0
TFTP      0          0
```

```
SNMP       0           0
HTTPS      0           0
```

show rmon stats

View Remote Network Monitoring (RMON) statistics to manage network performance.

Syntax

- **show rmon stats**

Command Parameters

stats

Displays RMON statistics information on the switch.

Default

None

Command Mode

User EXEC

Command Output

The **show rmon stats** command displays the following information:

Output field	Description
INDEX	An index that uniquely identifies an entry in the Ethernet statistics table.
PORT	Identifies the source of the data that this entry analyzes.
OWNER	The entity that configured this entry and is therefore using the assign resources.

Example

The following example displays the current RMON status on the switch.

```
Switch:1>show rmon stats
================================================================================
                          Rmon Ether Stats
================================================================================
INDEX    PORT    OWNER
--------------------------------------------------------------------------------
1      1/10    monitor
```

show route-map

Display current information about the IP route policy.

Syntax

- **show route-map**
- **show route-map [WORD <1-64>] [seq <1-65535>] [vrf WORD<1-16>] [vrfids WORD<0-512>]**
- **show route-map detail**
- **show route-map detail [vrf WORD<1-16>] [vrfids WORD<0-512>]**
- **show route-map vrf WORD<1-16>**
- **show route-map vrfids WORD<0-512>**
- **show route-map WORD<1-64>**
- **show route-map WORD<1-64> seq <1-65535>**

Command Parameters

detail

Specifies the long format information of the route map.

vrf WORD<1-16>

Specifies the name of the VRF.

vrfids WORD<0-512>

Specifies the ID of the VRF and is an integer in the range of 0 to 512.

WORD<1-64> seq <1-65535>

Displays a route policy with a policy name and a sequence number. WORD<1-64> is the policy name. seq <1-65535> is the sequence number.

Default

None

Command Mode

User EXEC

Command Output

The **show route-map** command displays the following information:

Output field	Description
NAME	Indicates the name of the route policy.
SEQ	Indicates the second index used to identify a specific policy within the route policy group (grouped by ID). Use this field to specify different match and set parameters and an action.
MODE	Indicates the action to take when this policy is selected for a specific route. Options are permit, deny, or continue. Permit indicates to allow the route. Deny indicates to ignore the route. Continue means continue checking the next match criteria configured in the next policy sequence; if none, take the default action in the given context.
EN	Indicates whether this policy is enabled. If disabled, the policy is not used.

show service-probe

Displays the Network Service Probe configuration.

Syntax

- **show service-probe**

Default

None.

Command Mode

User EXEC

Command Output

The **show service-probe** command displays the following information:

Output field	Description
Vlan	Displays the VLAN ID associated with the Network Service Probe.
Administrative State	Displays the administrative state of the Network Service Probe.
MAC Address	Displays the MAC address of the Network Service Probe interface.
IP Address	Displays the IP address of the Network Service Probe interface.

Output field	Description
IP Mask	Displays the subnet mask of the Network Service Probe interface.
IP Address Config	Displays the configuration method for the interface IP address.
Default Gateway	Displays the IP address of the default gateway.
Default Gateway State	Displays the administration state of the default gateway. If the state is ACTIVE, the route to the default gateway was successfully added.
Primary dynamic DNS server	Displays the dynamic IP address and query status of the DNS server. The status can be fail, success, unknown, or in progress.
Secondary dynamic DNS server	Displays the dynamic IP address and query status of the DNS server. The status can be fail, success, unknown, or in progress.
Tertiary dynamic DNS server	Displays the dynamic IP address and query status of the DNS server. The status can be fail, success, unknown, or in progress.

Example

The following example displays the Network Service Probe configuration.

```
Switch:1>show service-probe

================================================================================================
                                    Service Probe Info
================================================================================================

                          Vlan:                          15
                          Administrative State:          enabled
                          MAC Address:                   4e:bf:2d:0c:1f:bd
                          IP Address:                    192.0.2.11
                          IP Mask:                       255.255.255.0
                          IP Address Config:             dynamic
                          Default Gateway:               192.0.2.1
                          Default Gateway State:         ACTIVE
                       Primary dynamic DNS server
                          ============================
                                  IP address:   198.51.100.2
                                  Query status: Fail

                          Secondary dynamic DNS server
                          ============================
                                  IP address:   203.0.113.3
                                  Query status: Success
```

show sflow

Display sFlow configurations.

Syntax

- **show sflow**

Default

None

Command Mode

User EXEC

show sflow collector

Display sFlow collector information.

Syntax

- **show sflow collector**
- **show sflow collector <1-2>**

Command Parameters

<1-2>

Specifies which collector ID to display.

Default

None

Command Mode

User EXEC

show sflow interface

Display sFlow interface configurations.

Syntax

- **show sflow interface [enabled] [{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]**

Command Parameters

enabled

Shows information for all sFlow-enabled interfaces.

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

User EXEC

show sflow statistics

Display sFlow statistics.

Syntax

- **show sflow statistics**
- **show sflow statistics collector <1-2>**

Command Parameters

collector <1-2>

Specifies the collector ID to display the statistics.

Default

None

Command Mode

User EXEC

show slpp

Use Simple Loop Prevention Protocol (SLPP) information to view loop information.

Syntax

- **show slpp**

Default

None

Command Mode

User EXEC

show slpp interface

Show Simple Loop Prevention Protocol (SLPP) information for a port so that you can view the loop information for a port.

Syntax

- **show slpp interface GigabitEthernet [{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]**

Command Parameters

GigabitEthernet *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

User EXEC

show slpp-guard

View SLPP Guard configuration status for the switch or a specific list of ports.

Syntax

- **show slpp-guard [{slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]}]**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

User EXEC

show smlt

View all ports for a single port SMLT to ensure the correct ports are configured.

Syntax

- **show smlt**
- **show smlt mlt**

Command Parameters

mlt

Displays SMLT information for the MLT interface.

Default

None

Command Mode

User EXEC

show smtp

Displays a list of active event IDs for which the switch generates email notification. The command output includes the default list of IDs and IDs you specifically add or remove.

Syntax

- **show smtp [event-id]**

Command Parameters

event-id

Displays a list of active event IDs for which the switch generates email notification.

Default

None

Command Mode

User EXEC

Command Output

The **show smtp event-id** displays the following information:

Output field	Description
Log Event IDs	Specifies the list of events that generate email notification.
Default Event IDs	Specifies the default list of event IDs that generate email notification.
Remove From Default	Specifies the event ID that was removed.
Add List	Specifies the event ID that was added.

The following example displays information about SMTP Event IDs.

```
Switch>show smtp event-id

================================================================================
                            SMTP Event IDs Information
================================================================================
Log Event IDs: (total: 50)
            ,0x000106d0
            ,0x000106da
            ,0x000107f5
            ,0x0000c5ec
            ,0x00040506
            ,0x00088524
            ,0x000e4602
            ,0x000e4608
            ,0x00210596
            ,0x0027458d

Default Event IDs: (total: 50)
            ,0x000106d0
            ,0x000106da
            ,0x000107f5
            ,0x00040506
            ,0x00088524
            ,0x000e4602
            ,0x000e4608
            ,0x00210596
            ,0x0027458d

Remove From Default: (total: 0)

Add List: (total: 1)
            0x0000c5ec
```

show snmplog

View the contents of the Simple Network Management Protocol (SNMP) log.

Syntax

- **show snmplog**

Default

None

Command Mode

User EXEC

show snmp-server

Display Simple Network Management Protocol (SNMP) system information to view trap and authentication profiles.

Syntax

- **show snmp-server**
- **show snmp-server community**
- **show snmp-server context**
- **show snmp-server group**
- **show snmp-server host**
- **show snmp-server notify-filter**
- **show snmp-server user**
- **show snmp-server view**
- **show snmp-server view [viewname WORD<0-32>]**

Command Parameters

community
Displays the SNMP community table.

context
Displays vacm context table.

group
Displays SNMP group access table.

host
Displays SNMP host details.

notify-filter
Displays SNMP notify-filter details.

user
Displays SNMP users.

view
Displays SNMP MIB view table.

viewname WORD<0-32>
Displays the view for a particular view name.

Default

None

Command Mode

User EXEC

show snmp-server host

Display the Simple Network Management Protocol (SNMP) server configuration information.

Syntax

- **show snmp-server host**

Default

None

Command Mode

User EXEC

show snmp-server notify-filter

Display a new notify filter configuration information.

Syntax

- **show snmp-server notify-filter**

Default

None

Command Mode

User EXEC

show software

Display unpacked software releases information.

Syntax

- **show software**
- **show software detail**
- **show software release WORD<1-99>**

Command Parameters

detail

Displays software release in detail mode.

release <WORD 1-99>

Specifies a specific software release to be displayed in the range of 1 to 99.

verbose

Includes a date and time stamp to indicate when you last activated a software release. The output also indicates if you manually committed the software release, or if you used the automatic commit feature.

Default

None

Command Mode

User EXEC

show spanning-tree bpduguard

Display BPDU Guard configuration

Syntax

- **show spanning-tree bpduguard [{slot/port[/sub-port] [-slot/port[/subport]][,...]}]**
- **show spanning-tree bpduguard [GigabitEthernet {slot/port[/sub-port] [-slot/port[/subport]][,...]}]**

Command Parameters

{slot/port[/sub-port] [-slot/port[/subport]][,...]}

Identifies the slot and port in one of the following formats: a single slot and port (slot/port), a range of slots and ports (slot/port-slot/port), or a series of slots and ports (slot/port,slot/port,slot/port). If your platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

User EXEC

show spanning-tree config

Query the change detection setting to show the port information.

Syntax

- **show spanning-tree config**

Default

None

Command Mode

User EXEC

show spanning-tree mstp config

View the Multiple Spanning Tree Protocol (MSTP) configurations to display the MSTP-related bridge-level VLAN and region information.

Syntax

- **show spanning-tree mstp config**

Default

None

Command Mode

User EXEC

show spanning-tree mstp msti config

Display the configuration for one or all Multiple Spanning Tree Protocol (MSTP) instance IDs.

Syntax

- **show spanning-tree mstp msti config**
- **show spanning-tree mstp msti config <1-63>**

Command Parameters

<1-63>

Specifies the MSTP instance ID.

Default

None

Command Mode

User EXEC

show spanning-tree mstp msti port

Shows the configuration, role, or statistics information of an MSTP port.

Syntax

- **show spanning-tree mstp msti port config [{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]**
- **show spanning-tree mstp msti port role [{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]**
- **show spanning-tree mstp msti port statistics [{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

User EXEC

show spanning-tree mstp port config

Show mstp port configurations.

Syntax

- **show spanning-tree mstp port config {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

User EXEC

show spanning-tree mstp port role

Display Multiple Spanning Tree Protocol (MSTP) port information.

Syntax

- **show spanning-tree mstp port role {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

User EXEC

show spanning-tree mstp port statistics

Display Multiple Spanning Tree Protocol (MSTP) Multiple Spanning Tree Instance (MSTI) information to ensure the feature is configured correctly for your network.

Syntax

- **show spanning-tree mstp port statistics [{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

User EXEC

show spanning-tree mstp statistics

Display Multiple Spanning Tree Protocol (MSTP) statistics to see MSTP related bridge-level statistics.

Syntax

- **show spanning-tree mstp statistics**

Default

None

Command Mode

User EXEC

Command Output

The **show spanning-tree mstp statistics** command displays the following information:

Output field	Description
MSTP Up Count	The number of times the MSTP port has been enabled. A Trap is generated on the occurrence of this event.
MSTP Down Count	The number of times the MSTP port has been disabled. A Trap is generated on the occurrence of this event.
Region Config Change Count	The number of times the switch detects a Region Configuration Identifier Change. The switch generates a trap on the occurrence of this event.
Time since topology change	The time (in hundredths of a second) since the TcWhile Timer for any port in this Bridge was non-zero for Common Spanning Tree context.
Topology change count	The count of at least one non zero TcWhile timers on this Bridge for Common Spanning Tree context.
New Root Bridge Count	The number of times this Bridge has detected a Root Bridge change for Common Spanning Tree context. A Trap is generated on the occurrence of this event.

show spanning-tree mstp status

View the Multiple Spanning Tree Protocol (MSTP) status to display the MSTP- related status information known by the selected bridge.

Syntax

- **show spanning-tree mstp status**

Default

None

Command Mode

User EXEC

show spanning-tree rstp config

View the global Rapid Spanning Tree Protocol (RSTP) configuration information to display the RSTP configuration details.

Syntax

- **show spanning-tree rstp config**

Default

None

Command Mode

User EXEC

show spanning-tree rstp port config

Configure Ethernet Rapid Spanning Tree Protocol (RSTP) parameters to set RSTP parameters for the port.

Syntax

- **show spanning-tree rstp port config [{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

User EXEC

show spanning-tree rstp port role

View the Rapid Spanning Tree Protocol (RSTP) role to display the RSTP information.

Syntax

- **show spanning-tree rstp port role [{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

User EXEC

show spanning-tree rstp port statistics

View the Rapid Spanning Tree Protocol (RSTP) information for a selected port to display the RSTP related configuration information for the selected port.

Syntax

- **show spanning-tree rstp port statistics [{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

User EXEC

Command Output

The **show spanning-tree rstp port statistics** command displays the following information:

Output field	Description
RxRstBpduCount	The number of RSTP BPDUs received on this port.
RxConfigBpduCount	The number of configuration BPDUs received on this port.
RxTcnBpduCount	The number of TCN BPDUs received on this port.
TxRstBpduCount	The number of RSTP BPDUs transmitted by this port.
TxConfigBpduCount	The number of Config BPDUs transmitted by this port.
TxTcnBpduCount	The number of TCN BPDUs transmitted by this port.
InvalidRstBpduRxCount	The number of invalid RSTP BPDUs received on this port. A trap is generated on the occurrence of this event.
InvalidConfigBpduRx Count	The number of invalid configuration BPDUs received on this port. A trap is generated on the occurrence of this event.

Output field	Description
InvalidTcnBpduRxCount	The number of invalid TCN BPDUs received on this port. A trap is generated on the occurrence of this event.
ProtocolMigrationCount	The number of times this port migrated from one STP protocol version to another. The relevant protocols are STP-Compatible and RSTP. A trap is generated on the occurrence of this event.

show spanning-tree rstp port status

View the Rapid Spanning Tree Protocol (RSTP) status for a port to display the RSTP related status information for a selected port.

Syntax

- **show spanning-tree rstp port status [{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}]**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

User EXEC

show spanning-tree rstp statistics

View Rapid Spanning Tree Protocol (RSTP) statistics to manage network performance.

Syntax

- **show spanning-tree rstp statistics**

Default

None

Command Mode

User EXEC

Command Output

The **show spanning-tree rstp statistics** command displays the following information:

Output field	Description
RSTP Up Count	The number of times RSTP port has been enabled. A Trap is generated on the occurence of this event.
RSTP Down Count	The number of times RSTP port has been disabled. A Trap is generated on the occurence of this event.
Count of Root Bridge Changes	The number of times this Bridge has detected a Root Bridge change for Common Spanning Tree context.
STP Time since Topology change	The time (in hundredths of a second) since the "TcWhile" Timer for any port in this Bridge was non zero for this spanning tree instance.
Total number of topology changes	The number of times that there have been atleast one non zero "TcWhile" Timer on this Bridge for this spanning tree instance.

show spanning-tree rstp status

View the Rapid Spanning Tree Protocol (RSTP) status to display the RSTP related status information for the selected bridge.

Syntax

- **show spanning-tree rstp status**

Default

None

Command Mode

User EXEC

show spanning-tree status

View spanning-tree status information.

Syntax

- **show spanning-tree status**

Default

None

Command Mode

User EXEC

show spanning-tree tc-receive-alarm-threshold

Displays the tc-receive-alarm-threshold configuration.

Syntax

- **show spanning-tree tc-receive-alarm-threshold**

Default

None

Command Mode

User EXEC

show spbm

Display the status (enabled or disabled) and the ethertype for Shortest Path Bridging MAC (SPBM).

Syntax

- **show spbm**

Default

None

Command Mode

User EXEC

show spbm nick-name

Displays nickname information on the switch.

Syntax

- **show spbm nick-name**

Default

None.

Command Mode

User EXEC

Command Output

The **show spbm nick-name** command displays the following information:

Output field	Description
NICK-NAME	Specifies a nickname for the SPBM instance globally.
ORIGIN	Specifies how the nickname was obtained. The values can be one of the following: • config: manual configuration using CLI or SNMP • dnn: dynamic nickname assignment • adnn: automatic nickname assignment
SERVER SYSID	Specifies the system ID of the nickname server that issued the dynamic nickname.
SERVER HOST-NAME	Specifies the hostname of the nickname server that issued the dynamic nickname.
AREA	Specifies the area as home or remote.
AREA-NAME	Specifies the name of the area.

Example

The following example displays the SPBM nickname server information on the switch.

```
Switch:1>show spbm nick-name
================================================================================
                                      SPBM NICK-NAME
================================================================================
                          SERVER        SERVER
NICK-NAME    ORIGIN       SYSID         HOST-NAME       AREA       AREA-NAME
```

```
--------------------------------------------------------------------------------
0.77.20      config                    HOME       area-49.0020
0.77.30      config                    REMOTE     area-49.0000
--------------------------------------------------------------------------------
```

show spbm nick-name server leases

Shows the Shortest Path Bridging Media Access Control (SPBM) nickname server leases information.

Syntax

- **show spbm nick-name server leases**

Default

None

Command Mode

User EXEC

Command Output

The **show spbm nick-name server leases** command displays the following information:

Output field	Description
SYSTEM-ID	Indicates the system ID.
NICK-NAME	Indicates the nickname for the SPBM node.
HOST-NAME	Indicates the hostname.

Example

The following example displays the SPBM nickname server leases information on the switch.

```
Switch:1> show spbm nick-name server leases
================================================================================
                          SPBM NICK-NAME SERVER LEASES
================================================================================
SYSTEM-ID       NICK-NAME  HOST-NAME
--------------------------------------------------------------------------------
4088.2fe3.f484  a.10.0a    UNKNOWN
949b.2cb3.a484  a.10.0b    UNKNOWN
949b.2cad.4884  a.10.0c    UNKNOWN
949b.2cae.7c84  a.10.0d    VSP-7254XSQ
5c0e.8bff.5884  a.10.0e    UNKNOWN
0004.96f1.8084  a.10.0f    UNKNOWN
--------------------------------------------------------------------------------
```

show ssh global

Displays global SSH information.

Syntax

- **show ssh global**

Default

None

Command Mode

User EXEC

Command Output

The **show ssh global** command displays the following information:

Output field	Description
Total active sessions	Displays the number of active SSH sessions underway.
version	Displays if SSH is version 1 or version 2. The default is v2. As a best practice, configure the version to v2 only.
port	Displays the SSH connection port. The default is 22. You cannot configure the following TCP ports as SSH connection ports: 0 to 1024 (except port 22), 1100, 4095, 5000, 5111, 6000, or 999.
max-sessions	Displays the maximum number of SSH sessions allowed.
timeout	Displays the SSH connection authentication timeout in seconds.
action rsa-keygen	Displays the SSH RSA key size.
action dsa-keygen	Displays the SSH DSA key size.
rsa-auth	Displays if RSA authentication is enabled or disabled.
dsa-auth	Displays if DSA authentication is enabled or disabled.
pass-auth	Displays if password authentication is enabled or disabled.
keyboard-interactive-auth	Displays if the SSH server authentication mode is keyboard-interactive.
x509-auth	Displays if X.509 V3 authentication is enabled.
x509-auth Trustpoint CA Name	Displays the X.509 V3 CA trustpoint name.
x509-auth Identity Subject Name	Displays the digital certificate subject name to be used as the identity certificate.

Output field	Description
x509-auth overwrite	Displays if the switch sends the principal name and domain name from the certificate to the RADIUS server for authorization.
x509-auth strip-domain	Displays if the switch sends the principal name from the certificate without the domain name to the RADIUS server for authorization.
x509-auth use-domain	Displays if the switch sends the principal name from the certificate, with the domain name you entered to the RADIUS server for authorization.
x509-auth revocation-check-method	Displays the X.509 V3 authentication revocation check method. The
sftp enable	Displays if Secure FTP (SFTP) is enabled.
client enable	Displays if the SSH client is enabled.
enable	Displays if SSH secure mode is enabled. False is disabled. Secure is enabled.
authentication-type	Displays the types of authentication configured.
encryption-type	Displays the types of encryption configured.
key-exchange-method	Displays the algorithms configured for key exchange.

Example

The following example displays global ssh information

```
Switch:1(config)#show ssh global
        Total Active Sessions             : 1
        version                           : v2only
        port                              : 22
        max-sessions                      : 4
        timeout                           : 60
        action rsa-host key               : rsa-hostkeysize 2048
        action dsa-host key               : dsa-hostkeysize 1024
        rsa-auth                          : true
        dsa-auth                          : true
        pass-auth                         : true
        keyboard-interactive-auth         : false
        x509-auth                         : true
        x509-auth Trustpoint CA Name      :
        x509-auth Identity Subject Name   : not configured
        x509-auth overwrite               : false
        x509-auth strip-domain            : false
        x509-auth use-domain              : -
        x509-auth revocation-check-method : OCSP
        sftp enable                       : true

        client enable                     : true

        enable                            : true
        authentication-type               : aead-aes-128-gcm-ssh aead-aes-256-gcm-ssh hmac-sha1 hmac-sha2-256
        encryption-type                   : 3des-cbc aead-aes-128-gcm-ssh aead-aes-256-gcm-ssh aes128-cbc aes128-ctr
                                            aes192-cbc aes192-ctr aes256-cbc aes256-ctr blowfish-cbc rijndael128-cbc
                                            rijndael192-cbc
        key-exchange-method               : diffie-hellman-group-exchange-sha256 diffie-hellman-group14-sha1
                                            diffie-hellman-group14-sha256 diffie-hellman-group16-sha512
                                            diffie-hellman-group18-sha512
```

show ssh rekey

Displays the SSH rekey configuration information on the switch.

Syntax

- **show ssh rekey**

Command Parameters

info

Shows information about key exchange between server and client.

Default

None

Command Mode

User EXEC

Command Output

The **show ssh rekey** command displays the following information:

Output field	Description
Rekey status	Displays the status (TRUE or FALSE) of SSH rekeying.
Rekey data limit	Displays the configured SSH rekey data transmission limit in GB.
Rekey time interval	Displays the configured SSH rekey time interval in hours.

Example

The following example displays the SSH rekey configuration.

```
Switch:1>show ssh rekey
        Rekey Status        : TRUE
        Rekey data limit    : 1 GB
        Rekey time interval : 1 hours
```

show ssh session

Displays the current SSH sessions, including SCP and SFTP.

Syntax

- **show ssh session**

Default

None

Command Mode

User EXEC

show sys control

Shows system control settings.

Syntax

- **show sys control**

Default

None

Command Mode

User EXEC

Command Output

The **show sys control** command displays the following information:

Output field	Description
tcp-timestamp	Displays if the timestamp is enabled or disabled.
tcp-keepalive-time	Displays the value of the TCP keepalive time in seconds.
tcp-keepalive-interval	Displays the value of the TCP keepalive interval, in seconds.
tcp-keepalive-probes	Displays the value for the TCP keepalive probes.
mac-move-protection	Displays if MAC move protection is enabled or disabled for the Virtual-IST (vIST).

Example

The following example displays output from the **show sys control** command.

```
Switch:1>show sys control
================================================================================================
                              System Control Settings
================================================================================================
                  tcp-timestamp : enable
              tcp-keepalive-time : 60
          tcp-keepalive-interval : 10
            tcp-keepalive-probes : 5
```

```
                tcp-mtu-probing : disabled
                   tcp-base-mss : 1024
             mac-move-protection : on
```

show sys default-ping-context

Display the default context in which you execute ping commands and traceroute commands.

Syntax

- **show sys default-ping-context**

Command Mode

User EXEC

Command Output

The **show sys default-ping-context** command displays the following information:

Output field	Description
Default ping context	Displays the default context value for **ping** commands and **traceroute** commands.

Example

The following example displays output for the **show sys default-ping-context** command.

```
Switch:1>show sys default-ping-context

         Default ping context grt
```

show sys dns

Shows system DNS information.

The **show ip dns** command returns the same output.

Syntax

- **show sys dns**

Default

None

Command Mode

User EXEC

Command Output

The **show sys dns** command displays the following information:

Output field	Description
DNS Default Domain Name	Displays the domain name.
DNS Default Domain Name Origin	Displays the origin of the domain name.
DNS Host Name	Displays the host name.
IP address	Displays the IP address of the primary, secondary, or tertiary server.
Status	Displays the status of the primary, secondary, or tertiary server.
Total DNS Number of request made to this server	Displays the number of requests sent to the primary, secondary, or tertiary server.
Number of Successful DNS	Displays the number of successful requests sent to the primary, secondary, or tertiary server.

Example

The following example displays output from the **show sys dns** command.

```
Switch:1>show sys dns
    DNS Default Domain Name : test.company.com
    DNS Default Domain Name Origin: DHCP
    DNS Host Name: fabriciq10cdae6bd000
    Primary dynamic DNS server details:
    ===========================
         IP address : 192.0.2.11
         Status     : active
         Total DNS Number of request made to this server : 0
         Number of Successful DNS : 0

    Secondary dynamic DNS server details:
    ===========================
         IP address : 192.0.2.12
         Status     : active
         Total DNS Number of request made to this server : 0
         Number of Successful DNS : 0

       Tertiary dynamic DNS server details:
    ===========================
         IP address : 192.0.2.13
         Status     : active
         Total DNS Number of request made to this server : 0
         Number of Successful DNS : 0
```

show sys force-msg

Shows the message control force message pattern settings.

Syntax

- **show sys force-msg**

Default

None

Command Mode

User EXEC

show sys locator-led

Display the switch Locator LED status.

Syntax

- **show sys locator-led**

Default

None

Command Mode

User EXEC

The following example displays the Locator LED in an enabled state.

```
Switch:1>show sys locator-led

Locator LED status: ON
```

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine User Guide*.

show sys lrm-adapter

Shows the status of LRM/MACsec adapters.

Syntax

- **show sys lrm-adapter**

Default

None.

Command Mode

User EXEC

Usage Guidelines

Only 5720-VIM-6YE supports this adapter.

For more information about the adapter, see Two-Port External LRM/MACsec Adapter.

Command Output

The **show sys lrm-adpater** command displays the following information:

Output field	Description
ADAPTER ID	Shows the adapter ID. Use this ID to upgrade the firmware.
PORT NUM	Shows the VIM ports to which the adapter connects.
PHY FW VERSION	Shows the version of PHY firmware currently on the adapter.
UPGRADE NEEDED	Shows if the current firmware is out-of-date and requires an upgrade.

The following example displays a connected adapter with out-of-date firmware.

```
Switch:1>show sys lrm-adapter
================================================================================
                        LRM/MACSec Adapter General Info
================================================================================
ADAPTER    PORT            PHY FW     UPGRADE
ID         NUM             VERSION    NEEDED
--------------------------------------------------------------------------------
0          2/1   2/2        D006       Yes
--------------------------------------------------------------------------------
```

show sys mgid-usage

Shows the multicast group ID (MGID) usage for VLANs, SPBM, and multicast traffic.

Syntax

- **show sys mgid-usage**

Default

None

Command Mode

User EXEC

Command Output

The **show sys mgid-usag** command displays the following information:

Output field	Description
Number of MGIDs used for VLANs, multicast, or SPBM	Displays the number of MGIDs used for the feature.
Number of MGIDs remaining for VLANs, multicast, or SPBM	Displays the number of MGIDs still available for the feature.

Example

The following example displays output from the **show sys mgid-usage** command.

```
Switch:1>show sys mgid-usag
        Number of MGIDs used for VLANs : (6)
        Number of MGIDs used for multicast : (0)
        Number of MGIDs used for SPBM : (0)
        Number of MGIDs remaining for VLANs : (4089)
        Number of MGIDs remaining for multicast : (6976)
        Number of MGIDs remaining for SPBM : (1024)
```

show sys msg-control

Shows the system message control function status (activated or disabled).

Syntax

- **show sys msg-control**

Default

None

Command Mode

User EXEC

Command Output

The **show sys msg-control** command displays the following information:

Output field	Description
action	Displays the configured message control action.
control-interval	Displays the message control interval, in minutes.
max-msg-num	Displays the number of occurrences of a message after which the control action occurs.
status	Displays if the feature is enabled.

Example

The following example displays output from the **show sys msg-control** command.

```
Switch:1>show sys msg-control

Message Control Info :
        action                  : suppress-msg
        control-interval        : 5
        max-msg-num             : 5
        status                  : disable
```

show sys mtu

Shows system maximum transmission unit (MTU) information.

Syntax

- **show sys mtu**

Default

None

Command Mode

User EXEC

show sys power

View power information for the chassis.

Syntax

- **show sys power**

Default

None

Command Mode

User EXEC

Command Output

The **show sys power** command displays the following information:

Output field	Description
Chassis Power Status	Displays if the chassis contains redundant power.
Chassis Type	Displays the type of chassis.
Total Chassis Power	Displays the power currently used by the complete chassis.
Required Redundant Power	Displays the redundant power for the chassis.
Max Allocated Power	Displays the maximum power.
Available Power	Displays the available, unused, power.
Reserved Power	Displays the reserved power.
Required Power	Displays the required power.

Example

The following example displays summary power information.

```
Switch:1>show sys power

=================================================================================================
                           Chassis Power Information
=================================================================================================
Chassis Power Status: non-redundant

                             Total     Required  Max
Chassis                      Chassis   Redundant Allocated Available Reserved Required
Type                         Power     Power     Power     Power     Power    Power
-------------------------------------------------------------------------------------------------
5320-48T-8XE-FabricEngine    90        0         75        15        75       75
-------------------------------------------------------------------------------------------------
```

show sys power power-supply

View information about installed power supplies.

Syntax

- **show sys power power-supply**

Default

None

Command Mode

User EXEC

Command Output

The **show sys power power-supply** command displays the following information:

Output field	Description
Power Supply	Displays the power supply slot.
Type	Displays the type of power used.
Input Voltage	Displays the input line voltage.
Serial Num	Displays the power supply serial number.
Part Num	Displays the power supply part number.
Oper Status	Displays the status as on (up) or off (down).
Max Power	Displays the maximum power of the power supply.
Fan FlowType	Displays the airflow direction of the power supply.
Hardware Revision	Displays the hardware revision number.
Voltage [in V]	Displays the input voltage value for the power supply unit.
Voltage [out V]	Displays the output voltage value for the power supply unit.
Current in [in A]	Displays the input current value in for the power supply unit.
Current out [out A]	Displays the output current value for the power supply unit.
Power in [in W]	Displays the input power value in for the power supply unit.
Power out [out W]	Displays the output power value in for the power supply unit.

Example

The following example displays detailed power information for each power supply.

```
5420F-48P-4XE-FabricEngine:1>show sys power power-supply
================================================================================
                            Power Supply Information
```

```
================================================================================================
Power  Type    Input    Serial           Part             Oper   Max      Fan
Hardware
Supply         Voltage  Num              Num              Status Power    FlowType
Revision
------------------------------------------------------------------------------------------------
---
PS#1   AC      unknown  --               --               DOWN   0        front-back --
PS#2   AC      110/220  2041U-30076      801092-00-01     UP     150      front-back 01

------------------------------------------------------------------------------------------------
---
Power            Voltage    Voltage          Current    Current          Power      Power
Supply           in[V]      out[V]           in[A]      out[A]           in[W]      out[W]
------------------------------------------------------------------------------------------------
---
PS#1             --         --               --         --               --         --
PS#2             240.25     12.08            0.21       1.53             23.41      18.72
```

Usage Guidelines

Switches do not report information for Voltage in, Voltage out, Current in, Current out, Power in, and Power out for fixed power supply units.

show sys power slot

View power information for each slot within the switch.

Syntax

- **show sys power slot**

Default

None

Command Mode

User EXEC

Command Output

The **show sys power slot** command displays the following information:

Output field	Description
Slot No.	Displays the slot number.
Present	Displays if the slot is populated.
CardType	Displays the type of module in the slot.
Priority	Displays the priority of the slot for power management.
Power Status	Displays the status as on or off.

Output field	Description
Max Allocated Power	Displays the power for the slot.
Chassis Power Status	Displays if the chassis contains redundant power.
Chassis Type	Displays the type of chassis.
Total Chassis Power	Displays the power currently used by the complete chassis.
Required Redundant Power	Displays the redundant power for the chassis.
Max Allocated Power	Displays the maximum power.
Available Power	Displays the available, unused, power.
Reserved Power	Displays the reserved power.
Required Power	Displays the required power.

Example

The following example displays power information by slot.

```
5420F-48P-4XE-FabricEngine:1>show sys power slot
================================================================================
                           Slot Power Consumption
================================================================================
                                                                 Max
Slot     Present CardType                    Priority    Power  Allocated
No.                                                      Status Power
--------------------------------------------------------------------------------
1        YES     5420F-48P-4XE-FabricEngine CRITICAL    ON     128
2        NO      Not Present                LOW         OFF    0
--------------------------------------------------------------------------------

================================================================================
                         Chassis Power Information
================================================================================

Chassis Power Status: non-redundant

                            Total     Required  Max
Chassis                     Chassis   Redundant Allocated Available Reserved Required
Type                        Power     Power     Power     Power     Power    Power
--------------------------------------------------------------------------------------
5420F-48P-4XE-FabricEngine  920       0         128       792       128      128
--------------------------------------------------------------------------------------
```

show sys priv-exec-password

Verify authentication for Privileged EXEC CLI command mode.

Syntax

- **show sys priv-exec-password**

Default

None

Command Mode

User EXEC

Command Output

The **show sys priv-exec-password** command displays the following information:

Output field	Description
Privileged exec password status	Displays if authentication for Privileged EXEC CLI command mode access is enabled.

Example

The following example displays an authentication request when privileged-exec mode is enabled.

```
Switch:1>show sys priv-exec-password
                    Privileged exec password status : enabled
```

show sys setting

Shows system settings.

Syntax

- **show sys setting**

Default

None

Command Mode

User EXEC

Command Output

The **show sys setting** command displays the following information:

Output field	Description
udp-checksum	Displays if the User Datagram Protocol (UDP) checksum calculation is enabled.
mroute-stream-limit	Displays if Mroute stream limit is enabled.
contact	Displays the system contact.
location	Displays the system location.
name	Displays the system name.
portlock	Displays if port lock is enabled.
sendAuthenticationTrap	Displays if the system sends the authentication success trap.
autotopology	Displays if SynOptics Network Management Protocol (SONMP) is enabled.
mtu	Displays the system maximum transmission unit (MTU).
prototype	Displays if prototype is enabled.
data-path-fault-shutdown	Displays if data path fault shutdown is enabled.
secure-console	Displays if secure console access is enabled.
default-ping-context	Displays the default context in which you run **ping** and **traceroute** commands.

Example

The following example displays output from the **show sys setting** command.

```
Switch:1>show sys setting

              udp-checksum : enable
       mroute-stream-limit : disable
                   contact : http://www.company.com/
                  location : Anywhere, USA
                      name : Switch
                  portlock : off
    sendAuthenticationTrap : false
              autotopology : on
                       mtu : 1950
                 prototype : disable
     data-path-fault-shutdown : enable
            secure-console : disable
      default-ping-context : grt
```

show sys software

Verify that the image and configuration are loaded properly.

Syntax

- **show sys software**

Default

None

Command Mode

User EXEC

Command Output

The **show sys software** command displays the following information:

Output field	Description
Default Runtime Config File	Displays the default Run-time configuration file directory name.
Config File	Displays the name of a new configuration file.
Last Runtime Config Save	Displays the last run-time configuration saved.
Version	Displays the software version information.
PrimaryConfigSource	Displays the primary boot configuration file.
SecondaryConfigSource	Displays the secondary boot configuration file.
EnableFactoryDefaults	Displays if the switch will bypass the loading of the switch configuration file and load the factory defaults.
EnableDebugMode	Displays if the switch debugs the configuration file during loading configuration at system boot.
EnableRebootOnError	Displays if the switch automatically reboots on a fatal error.
EnableTelnetServer	Displays if the Telnet server is enabled.
EnableFtpServer	Displays if the FTP server is enabled.
EnableTftpServer	Displays if the TFTP server is enabled.

Example

The following example displays output from the **show sys software** command.

```
Switch:1>show sys software

System Software Info :

Default Runtime Config File : /intflash/config.cfg
Config File :
Last Runtime Config Save : 0

Boot Config Table
```

```
Version : Build 9.0.0.0 (GA) on Mon Oct 30 18:04:13 EDT 2023
PrimaryConfigSource : /intflash/config.cfg
SecondaryConfigSource : /intflash/config.cfg
EnableFactoryDefaults : false
EnableDebugMode : false
EnableRebootOnError : true
EnableTelnetServer : true
EnableFtpServer : true
EnableTftpServer : false
```

show sys stats

Shows system statistics.

Syntax

- **show sys stats**

Default

None

Command Mode

User EXEC

show sys stats ipmc-threshold-exceeded-cnt

Display IP multicast exceeded threshold counters.

Syntax

- **show sys stats ipmc-threshold-exceeded-cnt**

Default

None

Command Mode

User EXEC

show sys vim-speed

Shows the speed of all ports of a VIM.

Syntax

- **show sys vim-speed**

Default

None

Command Mode

User EXEC

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine User Guide*.

Command Output

The **show sys vim-speed** command displays the following information:

Output field	Description
Card Type	Specifies the name of the VIM.
Admin Speed	Specifies the configured speed for all ports in this VIM.

Example

The following example displays a 5720-VIM-6YE with a mix of port speeds.

```
Switch:1>show sys vim-speed
================================================================================================
                            VIM Speed Configuration
================================================================================================
                      CardType : 5720-VIM-6YE
                Auto vim speed : False
          Admin Speed (2/1-2/3) : 1000

                Auto vim speed : False
          Admin Speed (2/4-2/6) : 10000
```

show sys-info

Display the system status and technical information on the hardware components of the switch.

Syntax

- **show sys-info**
- **show sys-info bmc**
- **show sys-info card**
- **show sys-info cpld**
- **show sys-info fan**

- **show sys-info led**
- **show sys-info power**
- **show sys-info ssd**
- **show sys-info temperature**
- **show sys-info uboot**
- **show sys-info usb**

Command Parameters

bmc

Specifies information about the Baseboard Management Controller (BMC).

card

Specifies information about all the installed modules, including cooling modules (fans).

cpld

Specifies information about field programmable gate arrays (FPGA) and complex programmable logic devices (CPLD).

fan

Specifies information about installed cooling modules (fans).

led

Specifies system LED status.

power

Specifies information about installed power supplies.

ssd

Specifies information about installed modular Solid State Drives (SSD).

temperature

Specifies information about system temperature measured in degrees Celsius.

uboot

Specifies information about the uboot image.

usb

Specifies information about cached USB information.

Default

None

Command Mode

User EXEC

Usage Guidelines

The parameters for this command do not apply to all hardware platforms. For more information about feature support, see *Fabric Engine User Guide*.

The *temperature* parameter displays inlet temperature information for Energy Star certification. For more information about Energy Star certification, see *Fabric Engine and VOSS Feature Matrix*.

show syslog

View the syslog information to ensure accuracy.

Syntax

- **show syslog**

Default

None

Command Mode

User EXEC

show syslog certificate

Displays the Certificate Authority trustpoint for the syslog server.

Syntax

- **show syslog certificate**

Default

None

Command Mode

User EXEC

show syslog host

View the syslog host information to ensure accuracy.

Syntax

- **show syslog host <1-10>**

Command Parameters

<1-10>

Specifies the syslog host ID.

Default

None

Command Mode

User EXEC

show tacacs

show TACACS information.

Syntax

- **show tacacs**

Default

None

Command Mode

User EXEC

Command Output

The **show tacacs** command displays the following information:

Output field	Description
Global Status	
global enable	Displays if the TACACS+ feature is enabled globally.
authentication enabled for	Displays which application is authenticated by TACACS+. The possibilities are CLI, web, or all.
accounting enabled for	Displays if accounting is enabled. You can only enable accounting for CLI. By default, accounting is not enabled.
authorization	Displays if authorization is enabled.

Output field	Description
User privilege levels set for command authorization	Displays the privilege levels set for command authorization. When you configure command authorization for a particular level, all commands that you execute are sent to the TACACS+ server for authorization. The device can only execute the commands the TACACS+ server authorizes. The user privilege levels are: • 0: denied access • 1: read only (ro) access • 2: Layer 1 read and write (l1) access • 3: Layer 2 read and write (l2) access • 4: Layer 3 read and write (l3) access • 5: read and write (rw) access • 6: read and write all (rwa) access • 7-14: denied access • 15: read and write all (rwa) access
Server	
Prio	Displays the priority of the TACACS+ server. The switch attempts to use the primary server first, and the secondary server second.
Status	Displays the connection status between the server and the switch – connected or not connected.
Key	Displays as ****** instead of the actual key. The key is secret and is not visible.
Port	Displays the TCP port used to establish the connection to the server. The default port is 49.
IP address	Displays the IP address for the primary and secondary TACACS+ servers.
Timeout	Displays the period of time, in seconds, the switch waits for a response from the TACACS+ daemon before it times out and declares an error. The default is 10 seconds.
Single	Displays if a single open connection is maintained between the switch and TACACS+ daemon, or if the switch opens and closes the TCP connection to the TACACS+ daemon each time they communicate. The default is false, which means the device does not maintain the single open connection.

show tdr-test

Displays Time Domain Reflectometer (TDR) diagnostic Ethernet cable test results for a port.

Syntax

- **show tdr-test [port {slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]}]**

Command Parameters

{slot/port[-slot/port][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

User EXEC

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

Example

The following example displays TDR diagnostic Ethernet cable test results for a specific port.

```
Switch:1>show tdr-test port 1/1
Port               1/1 (cable length accuracy +/- 10 meters)
Port Status        Ok
Pair1  Status      Ok
Pair1  Length      4M
Pair2  Status      Ok
Pair2  Length      9M
Pair3  Status      Ok
Pair3  Length      9M
Pair4  Status      Crosstalk
Pair4  Length      4M
```

show tech

Display technical information about the status of the system and complete information about the hardware components, software components, and operation of the system.

The information available from the **show tech** command includes general information about the system (such as location), hardware (chassis, power supplies, fans, and ports), system errors, boot configuration, software versions, memory, port information

(locking status, configurations, names, interface status), VLANs and STGs (numbers, port members), Virtual Router Redundancy Protocol (VRRP), and log and trace files. This command displays more information than the similar **show sys-info** command.

Syntax

- **show tech**



Note

`show tech` is an alias for `show fulltech`. Both commands provide the same output.

Default

None

Command Mode

User EXEC

show telnet-access

Show the maximum number of Telnet sessions.

Syntax

- **show telnet-access**

Default

None

Command Mode

User EXEC

Command Output

The **show telnet-access** command displays the following information:

Output field	Description
max ipv4 sessions	Displays the maximum number of permitted IPv4 Telnet sessions.
max ipv6 sessions	Displays the maximum number of permitted IPv6 Telnet sessions.

Example

The following example shows output from the **show telnet-access** command.

```
Switch:1>show telnet-access
     max ipv4 sessions : 8
     max ipv6 sessions : 8
```

show trace cfm

Shows the configuration status for CFM trace.

Syntax

- **show trace cfm**

Default

None

Command Mode

User EXEC

show trace file

View the trace results.

Syntax

- **show trace file**
- **show trace file tail**

Command Parameters

tail

Show file from tail

Default

None

Command Mode

User EXEC

show trace level

Show the current trace level for all modules.

Syntax

- **show trace level**

Default

None

Command Mode

User EXEC

show trace modid-list

Show the relationship between level number and module ID to use with the trace tool.

Syntax

- **show trace modid-list**

Default

None

Command Mode

User EXEC

show trace sub-system

Show trace sub-system name.

Syntax

- **show trace sub-system**

Default

None

Command Mode

User EXEC

show unsupported-lastset

Display the last set of masked commands in the release.

Syntax

- **show unsupported-lastset**

Default

None

Command Mode

User EXEC

show users

Display a list of users who are logged on to the system.

Syntax

- **show users**

Default

None

Command Mode

User EXEC

Command Output

The **show users** command displays the following information:

Output field	Description
SESSION	Displays the connection method.
USER	Displays the user name.
ACCESS	Displays the user access level.
IP ADDRESS	Displays the user IP address.

The following example displays the connected users.

```
Switch:1>show users
SESSION   USER                ACCESS    IP ADDRESS
```

```
Telnet0   rwa                rwa       192.0.2.24 (current)
Console                      none      ----------
```

show virtual-ist

Show virtual IST information.

Syntax

- **show virtual-ist**

Default

None

Command Mode

User EXEC

show virtual-ist stat

Display stat for virtual ist.

Syntax

- **show virtual-ist stat**

Default

None

Command Mode

User EXEC

Command Output

The **show virtual-ist stat** command displays the following information:

Output field	Description
Ist Down	The count of how many sessions between the two peering switches went down since last boot.
Hello Sent	The count of transmitted hello messages.
Hello Recv	The count of received hello messages.

Output field	Description
Learn MAC Address Sent	The count of transmitted learned MAC address messages.
Learn MAC Address Recv	The count of received learned MAC address messages.
MAC Address AgeOut Sent	The count of transmitted aging out MAC address messages.
MAC Address AgeOut Recv	The count of received aging out MAC address messages.
MAC Address Expired Sent	The count of transmitted MAC address age expired messages.
MAC Address Expired Recv	The count of received MAC address age expired messages.
Delete Mac Address Sent	The count of transmitted MAC address deleted messages.
Delete Mac Address Recv	The count of received MAC address deleted messages.
Smlt Down Sent	The count of transmitted SMLT down messages.
Smlt Down Recv	The count of received SMLT down messages.
Smlt Up Sent	The count of transmitted SMLT up messages.
Smlt Up Recv	The count of received SMLT up messages.
Send MAC Address Sent	The count of transmitted send MAC table messages.
Send MAC Address Recv	The count of received send MAC table messages.
IGMP Sent	The count of transmitted IGMP messages.
IGMP Recv	The count of received IGMP messages.
Port Down Sent	The count of transmitted port down messages.
Port Down Recv	The count of received port down messages.
Request MAC Table Sent	The count of transmitted MAC table request messages.
Request MAC Table Recv	The count of received MAC table request messages.
Unknown Msg Type Recv	The count of received unknown message type messages.
Mlt Table Sync Req Sent	The count of transmitted MLT table sync request messages.
Mlt Table Sync Req Recv	The count of received MLT table sync request messages.

Output field	Description
Mlt Table Sync Sent	The count of transmitted MLT table sync messages.
Mlt Table Sync Recv	The count of received MLT table sync messages.
Port Update Sent	The count of transmitted port update messages.
Port Update Recv	The count of received port update messages.
Entry Update Sent	The count of transmitted entry update messages.
Entry Update Recv	The count of received entry update messages.
Dialect Negotiate Sent	The count of transmitted protocol ID messages.
Dialect Negotiate Recv	The count of received protocol ID messages.
Update Response Sent	The count of transmitted update response messages.
Update Response Recv	The count of received update response messages.
Transaction Que HiWaterM	The count of transaction queue high watermark messages.
Poll Count Hi Water Mark	The count of poll count high watermark messages.

show virtual-service

Displays virtual service information

Syntax

- **show virtual-service config WORD<1-80>**
- **show virtual-service install WORD<1-80>**
- **show virtual-service statistics WORD<1-80>**

Command Parameters

config WORD<1-80>

Displays the virtual-service configuration.

install WORD<1-80>

Displays installation status for a virtual service.

statistics WORD<1-80>

Displays statistics for virtual services configured on the switch.

Default

None

Command Mode

User EXEC

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

show vlacp

Display Virtual Link Aggregation Control Protocol (VLACP) global information.

Syntax

- **show vlacp**

Default

None

Command Mode

User EXEC

show vlacp interface

Display Virtual Link Aggregation Control Protocol (VLACP) global information.

Syntax

- **show vlacp interface**
- **show vlacp interface gigabitethernet {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **show vlacp interface gigabitethernet [vid <1-4059>]**

Command Parameters

gigabitethernet *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

vid *<1-4059>*

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

User EXEC

show vlan advance

View the advanced parameters to display the advanced parameters for the specified VLAN or for all VLANs.

Syntax

- **show vlan advance**
- **show vlan advance <1-4059>**

Command Parameters

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. If you enable VRF scaling and SPBM mode, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

User EXEC

show vlan autolearn-mac

View autolearned MAC addresses.

Syntax

- **show vlan autolearn-mac**

Default

None

Command Mode

User EXEC

show vlan basic

View the VLAN information to display the basic configuration for all VLANs or a specified VLAN.

Syntax

- **show vlan basic**
- **show vlan basic <1-4059>**

Command Parameters

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. If you enable VRF scaling and SPBM mode, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

User EXEC

show vlan brouter-port

View the brouter port information to display the brouter port VLAN information for all VLANs on the switch or for the specified VLAN.

Syntax

- **show vlan brouter-port**

Default

None

Command Mode

User EXEC

show vlan i-sid

Show the customer VLAN (C-VLAN) to instance service identifier (I-SID) associations.

Syntax

- **show vlan i-sid**
- **show vlan i-sid <1-4059>**

Command Parameters

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. If you enable VRF scaling and SPBM mode, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

User EXEC

Command Output

The **show vlan i-sid** command displays the following information:

Output field	Description
VLAN_ID	Specifies the VLAN IDs.
I-SID	Specifies the I-SIDs associated with the specified C-VLANs.
VLAN Name	Displays the name of the VLAN.
I-SID NAME	Specifies the name of the I-SID. By default, for an I-SID in use, the service is named ISID-x, where x correlates to the I-SID number of the service.

Example

The following example shows the output for this command.

```
Switch:1>show vlan i-sid
================================================================================
                    Vlan I-SID
================================================================================
VLAN_ID      I-SID    VLAN NAME        I-SID NAME
--------------------------------------------------------------------------------
1
10           100     VLAN-10          Hospital-Server-10
90           1000    VLAN-90         ISID-1000

3 out of 3 Total Num of Vlans displayed
```

show vlan mac-address-entry

View forwarding database (FDB) filters to display the FDB filters for the specified VLAN.

Syntax

- **show vlan mac-address-entry**
- **show vlan mac-address-entry <1-4059>**
- **show vlan mac-address-entry mac 0x00:0x00:0x00:0x00:0x00:0x00**
- **show vlan mac-address-entry port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **show vlan mac-address-entry spbm-tunnel-as-mac**

Command Parameters

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs

3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

mac 0x00:0x00:0x00:0x00:0x00:0x00

Specifies the MAC address.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

spbm-tunnel-as-mac

Discovers where entries are learned. The TUNNEL column indicates where in the SPBM network an entry is learned.

Default

None

Command Mode

User EXEC

Command Output

The **`show vlan mac-address-entry`** command displays the following information:

Output field	Description
VLAN ID	Indicates the VLAN for this MAC address.
STATUS	Indicates the status of this entry: • other • invalid • learned • self • mgmt
MAC ADDRESS	Indicates the MAC address.
INTERFACE	Displays the network-to-network interface (NNI).

Output field	Description
SMLT REMOTE	Indicates the MAC address entry for the remote vIST peer.
TUNNEL	Indicates the host name of the remote Backbone Edge Bridge (BEB).

show vlan mac-address-static

View the database status, MAC address, and QoS levels to display the static forwarding database status.

Syntax

- **show vlan mac-address-static**
- **show vlan mac-address-static <1-4059>**
- **show vlan mac-address-static mac 0x00:0x00:0x00:0x00:0x00:0x00**
- **show vlan mac-address-static port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

mac 0x00:0x00:0x00:0x00:0x00:0x00

Specifies the MAC address.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

User EXEC

show vlan manual-edit-mac

Show the list of manually edited MAC addresses and the associated ports.

Syntax

- **show vlan manual-edit-mac**

Default

None

Command Mode

User EXEC

show vlan members

View the VLAN port member status to display the port member status for all VLANs on the switch or for the specified VLAN.

Syntax

- **show vlan members [null-vlan] [port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}] [<1-4059>]**

Command Parameters

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

null-vlan

Displays ports in a null VLAN.

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

User EXEC

Command Output

The **show vlan members** command displays the following information:

Output field	Description
VLAN ID	Indicates the VLAN ID.
PORT MEMBER	Indicates the set of ports that are members (static or dynamic) of this VLAN.
ACTIVE MEMBER	Indicates the set of ports that are currently active in this VLAN. Active ports include all static and dynamic ports that meet the VLAN policy.
STATIC MEMBER	Indicates the set of ports that are static members of this VLAN. A static member of a VLAN is always active and never ages.
NOT_ALLOW MEMBER	Indicates the set of ports that cannot become members of this VLAN.
VLAN PORT NUM	Indicates the VLAN port number for the passive OSPF interface.

Example

The following example displays VLAN port data.

```
Switch1:1>show vlan members
================================================================================
                                  Vlan Port

================================================================================
VLAN PORT               ACTIVE             STATIC             NOT_ALLOW
ID   MEMBER             MEMBER             MEMBER             MEMBER
--------------------------------------------------------------------------------
```

```
1    1/1-1/4,1/6-      1/1-1/4,1/6-
     1/24              1/24
2    1/5               1/5


All 2 out of 2 Total Num of Port Entries displayed
```

show vlan nodal-mep

Display the nodal Maintenance Endpoint (MEP) configuration. The Nodal B-VLAN MEPs created on the CP and function as if they are connected to the virtual interface of the given B-VLAN. Because of this they are supported for both port and MLT based B-VLANs. To support this behavior a MAC entry is added to the FDB and a new CFM data path table containing the B-VLAN and MP level are added to direct CFM frames to the CP as required.

Syntax

- **show vlan nodal-mep**
- **show vlan nodal-mep <1-4059>**

Command Parameters

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. If you enable VRF scaling and SPBM mode, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

User EXEC

show vlan nodal-mip-level

Display the nodal Maintenance Intermediate Point (MIP) level configuration. The Nodal MIP is associated with a B-VLAN. VLAN and level are sufficient to specify the Nodal MIP entity. The Nodal MIP MAC address is the SPBM system ID for the node on which it resides. If the fastpath sends a message to the CP, the MIP responds if it is not the target and the MEP responds if it is the target.

Syntax

- **show vlan nodal-mip-level**

- **show vlan nodal-mip-level <1-4059>**

Command Parameters

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. If you enable VRF scaling and SPBM mode, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

User EXEC

show vlan private-vlan

Display the list of private VLANs.

Syntax

- **show vlan private-vlan <2-4059>**

Command Parameters

<2-4059>

Specifies the VLAN ID in the range of 2 to 4059. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1. By default, the system reserves VLAN IDs 4060 to 4094 for internal use. If you enable VRF scaling and SPBM mode, the system also reserves VLAN IDs 3500 to 3998.

Default

None

Command Mode

User EXEC

show vlan remote-mac-table

Display customer VLAN (C-VLAN) remote-mac-table information.

Syntax

- **show vlan remote-mac-table <1-4059>**
- **show vlan remote-mac-table <1-4059> alternative**

Command Parameters

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. If you enable VRF scaling and SPBM mode, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

alternative

Shows the table in the alternative way.

Default

None

Command Mode

User EXEC

Command Output

The **show vlan remote-mac-table** command displays the following information:

Output field	Description
VLAN	Indicates the VLAN ID for this MAC address.
STATUS	Indicates the status of this entry: • other • invalid • learned • self • mgmt
MAC-ADDRESS	Indicates the customer MAC address for which the bridge has forwarding and/or filtering information.
DEST-MAC	Indicates the provide MAC address for which the bridge has forwarding and/or filtering information.
BVLAN	Indicates the B-VLAN ID for this MAC address.
DEST-SYSNAME	Indicates the system name of the node where the MAC address entry comes from.

Output field	Description
PORTS	Either displays the value 0 or indicates the port in which a frame comes from.
SMLT REMOTE	Indicates the MAC address entry for the remote vIST peer.

show vlan static-mcastmac

Display the Layer 2 multicast media access control (MAC) filters.

Syntax

- **show vlan static-mcastmac [<1-4059>]**

Command Parameters

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. If you enable VRF scaling and SPBM mode, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

User EXEC

show web-server

Display the web server information.

Syntax

- **show web-server**

Default

None

Command Mode

User EXEC

Command Output

The **show web-server** command displays the following information:

Output field	Description
Status	Specifies whether the web server is enabled or disabled.
Secure-only	Specifies whether the web server secure-only is enabled for HTTPS access to the switch.
TLS-minimum-version	Specifies the minimum version of TLS protocol configured on the switch.
RO Username Status	Specifies if read-only user is enabled for the web server.
RO Password	Specifies the read-only password.
RWA Username	Specifies the user name. The default is admin.
RWA Password	Specifies the password for the web server.
Def-display-rows	Specifies the web server default display row width.
Inactivity timeout	Specifies the web-server login session inactivity timeout.
Html help tftp source-dir	Specifies the the TFTP or FTP directory for Help files.
HttpPort	Specifies the HTTP port for web access. The default value is 80.
HttpsPort	Specifies the HTTPS port for web access. The default value is 443.
NumHits	Specifies the number of hits to the web server.
NumAccessChecks	Specifies the number of access checks performed by the web server.
NumAccessBlocks	Specifies the number of access attempts blocked by the web server.
NumRxErrors	Specifies the number of receive errors the web server encounters.
NumSetRequest	Specifies the number of set-requests sent to the web server.
Minimum password length	Specifies the minimum password length. The default is 8 characters.
Last Host Access Blocked	Specifies the IP address of the last host access blocked by the web server.
In use certificate	Specifies if the certificate is self-signed or user installed.

Output field	Description
Certificate Trustpoint CA Name	Specifies the name of the Certificate Authority.
Certificate with Subject Name	Specifies the name of the subject certificate.
Ciphers-Tls	Specifies the ciphers for preset version of TLS for the web server.
SSL renegotiation	Specifies whether the web server SSL renegotiation is enabled or disabled.

Example

```
Switch:1>show web-server
Web Server Info :

        Status                     : on
        Secure-only                : enabled
        TLS-minimum-version        : tlsv12
        RO Username Status         : enabled
        RO Username                : user
        RO Password                : ********
        RWA Username               : admin
        RWA Password               : ********
        Def-display-rows           : 30
        Inactivity timeout         : 900 sec
        Html help tftp source-dir :
        HttpPort                   : 80
        HttpsPort                  : 443
        NumHits                    : 0
        NumAccessChecks            : 0
        NumAccessBlocks            : 0
        NumRxErrors                : 0

        NumTxErrors                : 0
        NumSetRequest              : 1
        Minimum password length    : 8
        Last Host Access Blocked   : 0.0.0.0
        In use certificate         : Self signed
        Certificate Truspoint CA Name :
        Certificate with Subject Name :

        Ciphers-Tls                : TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384
TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256
                                     TLS_ECDHE_RSA_WITH_AES_256_CBC_SHA384
TLS_ECDHE_RSA_WITH_AES_128_CBC_SHA256
                                     TLS_RSA_WITH_AES_256_CBC_SHA256
TLS_RSA_WITH_AES_256_CBC_SHA
                                     TLS_RSA_WITH_AES_128_CBC_SHA256
TLS_RSA_WITH_AES_128_CBC_SHA
        SSL renegotiation          : enabled
```

slot reset

Resets a slot.

Syntax

- **slot reset <slot number>**

Command Parameters

<slot number>

Identifies the slot number.

Default

None

Command Mode

User EXEC

Usage Guidelines

The number of slots can vary by product. For slot and port information, see *Fabric Engine User Guide*.

ssh (connection)

Connect to a remote Secure Shell (SSH) host.

Syntax

- **ssh WORD<1-256> -l WORD<1-32> [-p <1-32768>]**

Command Parameters

-l WORD<1-32>

Specifies the login name of the remote Secure Shell (SSH) server.

-p <1-49151>

Specifies the remote Secure Shell (SSH) server port number to which to connect. The default is 22.

WORD<1-256>

Specifies the remote SSH server using one of the following:

- host name
- IP address

- IS-IS host name
- IS-IS system ID



Note

You cannot establish an SSH connection to the boundary node from an IS-IS remote area.

Default

None

Command Mode

User EXEC

Usage Guidelines

This command uses the `/intflash/.ssh/known_hosts` file. If a host entry in the file changes, you can remove the file with the **`delete /intflash/.ssh/known_hosts`** command. This action is useful if you perform a factory reset on a switch, which resets the SSH key. Rather than perform a factory reset also on the switch that originates the SSH connection, you can remove the known hosts file.

tacacs switch

Changes the privilege level to determine what commands a user can access through TACACS+ server authorization. You must configure separate profiles in the TACACS+ server configuration file for switch level.

Syntax

- **`tacacs switch back`**
- **`tacacs switch level`**
- **`tacacs switch level <1-15>`**

Command Parameters

back

Returns the privilege level to the original level.

level <1-15>

Selects a specific privilege level. The switch supports levels 1 through 6:

- (1) read-only
- (2) Layer 1 read-write
- (3) Layer 2 read-write
- (4) Layer 3 read-write

- (5) read-write
- (6) read-write-all
- and level 15.

Default

None

Command Mode

User EXEC

tdr-test

Use Time Domain Reflectometer (TDR) to detect defects on Ethernet cables and to determine the status and length of cable pairs attached to the copper ports on the switch.

Syntax

- **tdr-test [port {slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]}]**

Command Parameters

port *{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all] [all]}*

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

User EXEC

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

telnet

Use this command to access another platform remotely.

Syntax

- **telnet**
- **telnet WORD<1-256>**

Command Parameters

WORD <1-256>

Specifies the host name, IPv4 address or IPv6 address.

Default

None

Command Mode

User EXEC

terminal

Configures the CLI display.

Syntax

- **terminal length <8-64>**
- **terminal length default**
- **terminal more disable**
- **terminal more enable**

Command Parameters

length <8-64>

Configures the number of lines in the output display for the current session.

length default

Configures the number of lines in the output display for the current session to the default value.

more <enable|disable>

Configures scrolling for the output display. The default is enabled.

Default

None

Command Mode

User EXEC

trace cfm

cfm related tracing information.

Syntax

- **trace cfm level <0-4>**

Command Parameters

level <0-4>

tracing level for cfm.

Default

None

Command Mode

User EXEC

trace filter file

Specifies the trace messages to filter.

Syntax

- **trace filter file WORD<0-128>**
- **trace filter file WORD<0-128> bt limit WORD<0-256>**
- **trace filter file WORD<0-128> clear**
- **trace filter file WORD<0-128> disable**
- **trace filter file WORD<0-128> lines**
- **trace filter file WORD<0-128> lines WORD<0-256>**
- **trace filter file WORD<0-128> range**

- **trace filter file WORD<0-128> range WORD<0-256> WORD<0-256>**
- **trace filter file WORD<0-128> supress**

Command Parameters

bt limit WORD<0-256>

Performs backtrace filtering for a specific limit value.

clear

Clears trace filter information.

disable

Disables the trace filter.

lines WORD<0-256>

Specifies the lines to filter.

range WORD<0-256> WORD<0-256>

Specifies the range to filter.

suppress

Suppresses the trace filter.

WORD<0-128>

Specifies the filename.

Default

None

Command Mode

User EXEC

trace filter module

Specifies the trace messages to filter.

Syntax

- **trace filter module <0-136>**
- **trace filter module <0-136> clear**
- **trace filter module <0-136> disable**
- **trace filter module <0-136> info**
- **trace filter module <0-136> supress**

Command Parameters

<0-136>

Specifies the module ID.

clear

Clears trace filter information.

disable

Disables the trace filter.

info

Shows the trace filter configuration for the module.

suppress

Suppresses the trace filter.

Default

None

Command Mode

User EXEC

trace flags ospf

Enable or disables OSPFv2 trace flags for debugging. The flags you set are used by the trace level.

Syntax

- **trace flags ospf**
- **trace flags ospf remove {none | all | tx-hello | rx-hello | tx-ddp-pkt | rx-ddp-pkt | tx-lsu-pkt | rx-lsu-pkt | tx-lsack | rx-lsack | tx-lsr | rx-lsr | pkt-err | nbr-mismatch | flood | spf-intra | spf-inter | spf-extern | spf-tree | nbr-change | intf-change | abr-lsa-generate | asbr-lsa-generate | dr | dd-masterslave | auth-fail | config | lsa | policy}**
- **trace flags ospf set <none|all|tx-hello|rx-hello|tx-ddp-pkt|rx-ddp-pkt|tx-lsu-pkt|rx-lsupkt|tx-lsack|rx-lsack|tx-lsr|rx-lsr|pkt-err|nbr-mismatch|flood|spf-intra|spf-inter|spfextern|spf-tree|nbr-change|intf-change|abr-lsa-generate|asbr-lsa-generate|dr|ddmasterslave|auth-fail|config|lsa|policy>**

Command Parameters

remove <none|all|tx-hello|rx-hello|tx-ddp-pkt|rx-ddp-pkt|tx-lsu-pkt|rxlsu-pkt|tx-lsack|rx-lsack|tx-lsr|rx-lsr|pkt-err|

nbr-mismatch|flood|spf-intra|spf-inter|spfextern|spf-tree|nbr-change|intf-change|abr-lsa-generate|asbr-lsa-generate|dr|ddmasterslave|auth-fail|config|lsa|policy>

Removes the OSPF trace flags for the specified option.

set <none|all|tx-hello|rx-hello|tx-ddp-pkt|rx-ddp-pkt|tx-lsu-pkt|rx-lsupkt|tx-lsack|rx-lsack|tx-lsr|rx-lsr|pkt-err|nbr-mismatch|flood|spf-intra|spf-inter|spfextern|spf-tree|nbr-change|intf-change|abr-lsa-generate|asbr-lsa-generate|dr|ddmasterslave|auth-fail|config|lsa|policy>

Sets the OSPF trace flags for the specified option.

Default

By default, all flags are turned off.

Command Mode

User EXEC

trace grep

Search trace results for a specific string value, for example, the word error.

Syntax

- **trace grep**
- **trace grep WORD<0-128>**

Command Parameters

WORD<0-128>

Specifies the search keyword. You can use a specific MAC address or search for errors, using the command, trace grep error.

Default

None

Command Mode

User EXEC

trace level

Use trace to observe the status of a software module at a given time.

Syntax

- **trace level [<Module_ID> <0-4>]**
- **trace level sub-system WORD<1-20> <0-5>**
- **trace level sub-system WORD<1-20> <0-5> [process WORD<1-20>] slot <slot>**

Command Parameters

<0-4>

Specifies the trace level from 0 to 4, where 0 is disabled; 1 is very terse; 2 is terse; 3 is very verbose, 4 is verbose.

<Module_ID>

<Module_ID> specifies the module for the trace. Different hardware platforms support different IDs because of feature support differences. For feature support information, see *Fabric Engine and VOSS Feature Matrix*. To see the list of module IDs, use the **show trace modid-list** command or CLI command completion Help.

sub-system WORD<1-20>

Specifies a sub-system ID.

slot <slot>

Specifies the valid IO slot number. Different hardware platforms support different slot ranges. Use the CLI Help to see the available range for your switch.

Default

None

Command Mode

User EXEC

trace route-map

Enable or disable trace for route-maps.

Syntax

- **trace route-map { off | on }**
- **trace route-map { off | on } address {A.B.C.D}**
- **trace route-map { off | on } iflist WORD<1-256>**
- **trace route-map { off | on } name WORD<1-64>**
- **trace route-map { off | on } protocol any**

- **trace route-map { off | on } protocol ospf**
- **trace route-map { off | on } protocol rip**
- **trace route-map { off | on } type accept**
- **trace route-map { off | on } type announce**

Command Parameters

{ off | on }
Enables or disables tracing.

address {A.B.C.D}
Specifies the interface address.

iflist WORD<1-256>
Specifies the interface list name.

name WORD<1-64>
Specifies the name of a route-map.

protocol
Specifies a routing protocol.

type
Specifies a route-map type.

Default

None

Command Mode

User EXEC

trace save

Save Trace Sub-System Configuration.

Syntax

- **trace save**

Default

None

Command Mode

User EXEC

trace screen

Configure if the system Display trace information on screen.

Syntax

- **trace screen disable**
- **trace screen enable**

Command Parameters

disable

Prevents the trace messages from appearing on screen.

enable

Shows the trace messages on screen.

Default

None

Command Mode

User EXEC

trace shutdown

Disables trace.

Syntax

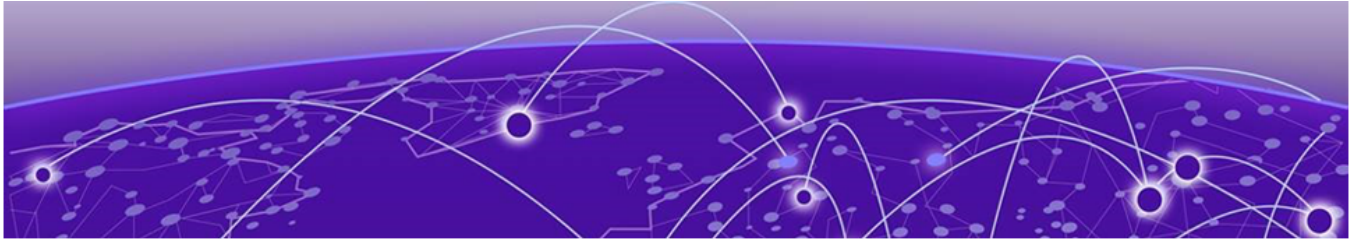
- **trace shutdown**

Default

None

Command Mode

User EXEC



VLAN Interface Configuration

The following topics document commands available in VLAN Interface Configuration mode of the command line interface (CLI).

dsapssap

Configure the multiple DSAP and SSAP to create a protocol-based VLAN.

Syntax

- **default dsapssap <0x0-0xffff | 0x0-0x0>**
- **dsapssap <0x0-0xffff | 0x0-0x0>**
- **no dsapssap <0x0-0xffff | 0x0-0x0>**

Command Parameters

<0x0-0xffff | 0x0-0x0>

Configures a table used to maintain DSAP/SSAP values assigned to an sna802dot2 or user defined VLAN.

Default

None

Command Mode

VLAN Interface Configuration

dvr vrrp-election

Identifies the DvR VLAN, and associated Service Instance Identifier (I-SID), to become the primary Virtual Router Redundancy Protocol (VRRP) router through the election process.

Syntax

- **default dvr vrrp-election**
- **dvr vrrp-election**

- **no dvr vrrp-election**

Default

By default, no VLAN is configured as the DvR VRRP election VLAN.

Command Mode

VLAN Interface Configuration

Usage Guidelines

This command only applies to DvR Controllers. For information on DvR Controller support, see *Fabric Engine and VOSS Feature Matrix*.

You can identify only one VLAN for election per DvR Controller.

ip address (on a VLAN)

To create an IP interface on a VLAN, you must assign a primary IP address to the VLAN.

Syntax

- **ip address {<A.B.C.D/X> |<A.B.C.D> <A.B.C.D>} [<0-511>] [dvr-one-ip] [name WORD<0-64>] [secondary] [state-disabled]**
- **no ip address {A.B.C.D} [dvr-one-ip] [name WORD<0-64>][secondary]**

Command Parameters

{<A.B.C.D/X> |<A.B.C.D> <A.B.C.D>}

Specifies the IP address and subnet mask in the format A.B.C.D/X or A.B.C.D A.B.C.D.

secondary

Identifies the IP address as a Secondary IP Interface.

dvr-one-ip

Specifies that the IP address will be used as the DvR gateway IP address and will be used by all other DvR Controllers for the DvR VLAN subnet.

<0-511>

Specifies a number by which to offset the MAC address from the chassis MAC address. This ensures that each IP address has a different MAC address. If you omit this variable, a unique MAC offset is automatically generated.

name *WORD <0-64>*

Specifies the name associated with the IP address on a VLAN.

state-disabled

Creates the IP interface in an administratively disabled state. This parameter is useful if you want to preconfigure an IP interface, including the routing protocol configuration for that interface, and enable it later during a maintenance window. This parameter applies only to the primary IP address. By default, the switch enables an IP interface after you configure the primary IP address.

Default

None

Command Mode

VLAN Interface Configuration

Usage Guidelines

The *state-disabled* parameter does not appear in a saved configuration file. The configuration file uses the **no ip interface enable** syntax.

ip anycast-gateway {A.B.C.D}

Configures the gateway IP and a gateway MAC for an Anycast IP Gateway interface.

Syntax

- **ip anycast-gateway {A.B.C.D} [vrid <1-255>]**
- **no ip anycast-gateway gw-ipv4**

Command Parameters

{A.B.C.D}

Specifies the gateway IPv4 address. The gateway IP must be in different subnets for different interfaces, and must be the same on different routers for the same associated Layer 2 VSNs.

gw-ipv4

Removes the gateway IP from the interface.

vrid <1-255>

Specifies the virtual router ID, which defines the gateway MAC as a VRRP MAC. The gateway MAC must be the same on different routers for the same associated Layer 2 VSN.

If you do not specify the VRID as part of the command, the default value is VRID 39 (hexadecimal 27), which translates to the MAC of 00:00:5e:00:01:27.

Default

None

Command Mode

VLAN Interface Configuration

ip anycast-gateway enable

Enables Anycast IP Gateway on the VLAN.

Syntax

- **ip anycast-gateway enable**
- **no ip anycast-gateway enable**

Default

The default is disabled.

Command Mode

VLAN Interface Configuration

ip anycast-gateway one-ip {A.B.C.D/X}

Configures the interface as a One IP interface, which means the gateway IP is the same as the VLAN IP.

Syntax

- **ip anycast-gateway one-ip {A.B.C.D/X} [<0-511>]**
- **ip anycast-gateway one-ip {A.B.C.D/X} vrid <1-255> [<0-511>]**
- **no ip anycast-gateway gw-ipv4**

Command Parameters

<0-511>

Specifies a number by which to offset the MAC address from the chassis MAC address. This ensures that each IP address has a different MAC address. If you omit this variable, a unique MAC offset is automatically generated.

{A.B.C.D/X}

Specifies the IPv4 address and subnet mask. The gateway IP must be in different subnets for different interfaces, and must be the same on different routers for the same associated Layer 2 VSNs.

gw-ipv4

Removes the gateway IP from the interface.

vrid <1-255>

Specifies the virtual router ID, which defines the gateway MAC as a VRRP MAC. The gateway MAC must be the same on different routers for the same associated Layer 2 VSN.

If you do not specify the VRID as part of the command, the default value is VRID 39 (hexadecimal 27), which translates to the MAC of 00:00:5e:00:01:27.

Default

None

Command Mode

VLAN Interface Configuration

ip arp-inspection enable

Enables DAI on a particular VLAN.

Syntax

- **default ip arp-inspection enable**
- **ip arp-inspection enable**
- **no ip arp-inspection enable**

Default

Disabled

Command Mode

VLAN Interface Configuration

ip arp-proxy enable (for a VLAN)

Configure an ARP proxy to allow a router to answer a local ARP request for a remote destination.

Syntax

- **ip arp-proxy enable**
- **no ip arp-proxy**

- **no ip arp-proxy enable**

Default

The default is disabled.

Command Mode

VLAN Interface Configuration

ip arp-response (for a VLAN)

Enable Address Resolution Protocol (ARP) on the switch to allow a router to answer a local ARP request.

Syntax

- **default ip arp-response**
- **ip arp-response**
- **no ip arp-response**

Default

None

Command Mode

VLAN Interface Configuration

ip bfd (for a VLAN)

Enable and configure Bidirectional Forwarding Detection (BFD) on a VLAN.

Syntax

- **default ip bfd enable**
- **default ip bfd interval**
- **default ip bfd min-rx**
- **default ip bfd multiplier**
- **default ip bfd vlan**
- **ip bfd enable**
- **ip bfd interval**
- **ip bfd min-rx**
- **ip bfd multiplier**

- **ip bfd vlan**
- **no ip bfd**
- **no ip bfd vlan**

Command Parameters

enable

Enable BFD on a VLAN.

interval

Specifies the transmit interval in milliseconds. The default is 200 ms.

The minimum value for the transmit interval is 100 ms. You can configure a maximum of 4 BFD sessions with the minimum value for the transmit interval. You can configure the remaining BFD sessions with a transmit interval that is greater than or equal to the 200 ms default value.

min-rx

Specifies the receive interval in milliseconds. The default is 200 ms.

The minimum value for the receive interval is 100 ms. You can configure a maximum of 4 BFD sessions with the minimum value for the receive interval. You can configure the remaining BFD sessions with a receive interval that is greater than or equal to the 200 ms default value.

multiplier

Specifies the multiplier used to calculate the amount of time BFD waits before it declares a receive timeout. The default is 3.

If you configure the transmit interval or the receive interval as 100 ms, you must configure a value of 4 or greater for the multiplier.

vlan <1-4094>

Specifies the VLAN ID in the range of 1-4094.

Default

The default is disabled.

Command Mode

VLAN Interface Configuration

ip dhcp-relay (for a VLAN)

Configure Dynamic Host Configuration Protocol (DHCP) relay on an interface.

Note

The command no ip dhcp-relay disables DHCP relay but does not delete the DHCP entry.

Syntax

- **default ip dhcp-relay**
- **ip dhcp-relay**
- **no ip dhcp-relay**

Default

None

Command Mode

VLAN Interface Configuration

ip dhcp-relay broadcast (for a VLAN)

Configures Dynamic Host Configuration Protocol (DHCP) relay on an interface to send the server reply as a broadcast to the end station.

Note
The command no ip dhcp-relay disables broadcast DHCP relay but does not delete the DHCP entry.

Syntax

- **default ip dhcp-relay broadcast**
- **ip dhcp-relay broadcast**
- **no ip dhcp-relay broadcast**

Default

None

Command Mode

VLAN Interface Configuration

ip dhcp-relay circuitId (for a VLAN)

Configure Dynamic Host Configuration Protocol (DHCP) relay to insert the Option 82 Circuit ID on an interface.

Note
The command no ip dhcp-relay disables circuitId DHCP relay but does not delete the DHCP entry.

Syntax

- **default ip dhcp-relay circuitId**
- **ip dhcp-relay circuitId**
- **no ip dhcp-relay circuitId**

Default

None

Command Mode

VLAN Interface Configuration

ip dhcp-relay clear-counters (for a VLAN)

Configure Dynamic Host Configuration Protocol (DHCP) relay to clear the dhcp-relay counter on an interface.

Syntax

- **ip dhcp-relay clear-counters**

Default

None

Command Mode

VLAN Interface Configuration

ip dhcp-relay fwd-path {A.B.C.D} (for a VLAN)

Create the forwarding path from the client to the server.

Syntax

- **default ip dhcp-relay fwd-path {A.B.C.D}**
- **ip dhcp-relay fwd-path {A.B.C.D}**
- **no ip dhcp-relay fwd-path {A.B.C.D}**

Command Parameters

{A.B.C.D}

Creates a forwarding path to the Dynamic Host Configuration Protocol (DHCP) server with a mode and a state. A.B.C.D is the IP address of the server. The default IP address of the relay is the address of the interface.



Tip

If the relay is a Virtual Router configured on this interface, you must set the vrid.

Default

None

Command Mode

VLAN Interface Configuration

ip dhcp-relay fwd-path {A.B.C.D} disable

Disables the forwarding path on a VLAN.

Syntax

- **ip dhcp-relay fwd-path {A.B.C.D} disable**

Default

None

Command Mode

VLAN Interface Configuration

ip dhcp-relay fwd-path {A.B.C.D} enable

Enables the forwarding path on a VLAN.

Syntax

- **ip dhcp-relay fwd-path {A.B.C.D} enable**

Default

None

Command Mode

VLAN Interface Configuration

ip dhcp-relay fwd-path {A.B.C.D} mode (for a VLAN)

Modify Dynamic Host Configuration Protocol (DHCP) mode to forward Bootstrap Protocol (BOOTP) messages only, DHCP messages only, or both.

Syntax

- **default ip dhcp-relay fwd-path {A.B.C.D} mode**
- **ip dhcp-relay fwd-path {A.B.C.D} mode bootp**
- **ip dhcp-relay fwd-path {A.B.C.D} mode bootp_dhcp**
- **ip dhcp-relay fwd-path {A.B.C.D} mode dhcp**

Command Parameter

{bootp|dhcp|bootp_dhcp}

Configures DHCP mode to forward BOOTP messages only, DHCP messages only, or both. The default is both.

Default

The default mode is both.

Command Mode

VLAN Interface Configuration

ip dhcp-relay fwd-path {A.B.C.D} src-port-67 (for a VLAN)

Configure a forwarding path with source port 67 in a User Datagram Protocol (UDP) on a VLAN.

Syntax

- **default ip dhcp-relay fwd-path {A.B.C.D} src-port-67**
- **ip dhcp-relay fwd-path {A.B.C.D} src-port-67**
- **no ip dhcp-relay fwd-path {A.B.C.D} src-port-67**

Command Parameters

{A.B.C.D}

Creates a forwarding path to the DHCP server with a mode and a state. A.B.C.D is the IP address of the server. The default IP address of the relay is the address of the interface.



Tip

If the relay is a Virtual Router configured on this interface, you must set the vrid.

src-port-67

Specifies that the UDP source port is 67 for BOOTP request. The default is 68.

Default

None

Command Mode

VLAN Interface Configuration

ip dhcp-relay fwd-path {A.B.C.D} vrid <1-255> (for a VLAN)

Creates a forward path server with a virtual router ID (or VRRP ID), a mode, and a state.

Syntax

- **default ip dhcp-relay fwd-path {A.B.C.D} vrid <1-255>**
- **ip dhcp-relay fwd-path {A.B.C.D} vrid <1-255>**
- **no ip dhcp-relay fwd-path {A.B.C.D} vrid <1-255>**

Command Parameters

<1-255>

Specifies the virtual router ID. The virtual router acts as the default router for one or more associated addresses. The range is 1 to 255.

Default

None

Command Mode

VLAN Interface Configuration

ip dhcp-relay include-secondary

Enables Dynamic Host Configuration Protocol (DHCP) Smart Relay, which can use secondary addresses configured on a VLAN or VRRP interface.

Syntax

- **default ip dhcp-relay include-secondary**
- **ip dhcp-relay include-secondary <parallel | sequential>**
- **no ip dhcp-relay include-secondary**

Command Parameters

parallel

Specifies smart functionality of the DHCP relay. In parallel mode, the relay agent makes multiple copies of DHCP requests and inserts each IP address of the client- facing interface (VLAN or VRRP) as the gateway address in each copy of the request. The switch simultaneously relays multiple packets to the DHCP server, assigning each packet the correct IP address in the correct subnet

sequential

Specifies smart functionality of the DHCP relay. In sequential mode, the relay agent forwards received DHCP packets from all IP addresses on the VLAN or VRRP interface one at a time, starting with the primary address and continuing with each secondary address. Each time a packet is received, the agent selects an address on the VLAN or VRRP interface. The relay agent forwards three client requests to the DHCP Server before repeating the process and cycling through all of the primary and secondary IP addresses.

Default

The default is disabled.

Command Mode

VLAN Interface Configuration

ip dhcp-relay max-hop (for a VLAN)

Configures the maximum number of hops before a BOOTP/DHCP packet is discarded on an interface.

Syntax

- **default ip dhcp-relay max-hop**
- **ip dhcp-relay max-hop <1-16>**

Command Parameters

<1-16>

Configures the maximum number of hops before a BOOTP/DHCP packet is discarded. The range is 1 to 16. The default is 4.

Default

None

Command Mode

VLAN Interface Configuration

ip dhcp-relay min-sec (for a VLAN)

Configures the minimum seconds count for Dynamic Host Configuration Protocol (DHCP) on an interface.

Syntax

- **default ip dhcp-relay min-sec**
- **ip dhcp-relay min-sec <0-65535>**

Command Parameters

<0-65535>

Configures the minimum seconds count for DHCP. If the secs field in the Bootstrap Protocol (BOOTP)/DHCP packet header is greater than this value, the device relays or forwards the packet; otherwise, the packet is dropped. The range is 0 - 65535. The default is 0 seconds.

Default

None

Command Mode

VLAN Interface Configuration

ip dhcp-relay mode (for a VLAN)

Configures Dynamic Host Configuration Protocol (DHCP) mode to forward BOOTP messages only, DHCP messages only, or both.

Syntax

- **default ip dhcp-relay mode**
- **ip dhcp-relay mode { bootp | dhcp | bootp_dhcp }**

Command Parameters

{bootp|dhcp|bootp_dhcp}

Configures DHCP mode to forward BOOTP messages only, DHCP messages only, or both. The default is both.

Default

None

Command Mode

VLAN Interface Configuration

ip dhcp-relay remoteId (for a VLAN)

Enables Option82 remote ID on the interface.

Syntax

- **default ip dhcp-relay remoteId**
- **ip dhcp-relay remoteId**
- **no ip dhcp-relay remoteId**

Default

None

Command Mode

VLAN Interface Configuration

ip dhcp-relay trusted (for a VLAN)

Configures the Dynamic Host Configuration Protocol (DHCP) circuit as trusted on an interface.

Syntax

- **default ip dhcp-relay trusted**
- **ip dhcp-relay trusted**

- **no ip dhcp-relay trusted**

Default

None

Command Mode

VLAN Interface Configuration

ip dhcp-snooping enable (for VLAN)

Enables DHCP Snooping on a specific VLAN.

Syntax

- **ip dhcp-snooping enable**
- **ip dhcp-snooping enable**
- **no ip dhcp-snooping enable**

Default

Disabled

Command Mode

VLAN Interface Configuration

ip directed-broadcast (for a VLAN)

Configure the device to forward directed broadcasts for a VLAN.

Syntax

- **default ip directed-broadcast [enable]**
- **ip directed-broadcast [enable]**
- **no ip directed-broadcast [enable]**

Command Parameters

enable

Specifies that an Isolated Routing Port (IRP) can forward directed broadcast traffic. A directed broadcast is a frame sent to the subnet broadcast address on a remote IP subnet. By disabling or suppressing directed broadcast on an interface, all frames sent to the subnet broadcast address for a local router interface are

dropped. Disabling this function protects a host from possible denial of service (DoS) attacks.

With the feature enabled, the Control Processor (CP) does not receive a copy of the directed broadcast. As a result, the system does not respond to a subnet broadcast ping sent from a remote subnet.

Default

The default is disabled.

Command Mode

VLAN Interface Configuration

ip forward-protocol udp (on a VLAN)

Configure UDP protocols to determine which UDP broadcasts are forwarded

Syntax

- **default ip forward-protocol udp**
- **default ip forward-protocol udp vlan <1-4059>**
- **ip forward-protocol udp vlan <1-4059>**
- **no ip forward-protocol udp**
- **no ip forward-protocol udp vlan <1-4059>**

Command Parameters

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

VLAN Interface Configuration

ip forward-protocol udp broadcastmask

Configure the broadcast mask on the IP forwarding list.

Syntax

- **default ip forward-protocol udp broadcastmask**
- **default ip forward-protocol udp broadcastmask {A.B.C.D}**
- **ip forward-protocol udp broadcastmask {A.B.C.D}**
- **ip forward-protocol udp vlan <1-4059> broadcastmask {A.B.C.D}**
- **no ip forward-protocol udp broadcastmask**
- **no ip forward-protocol udp broadcastmask {A.B.C.D}**

Command Parameters

<A.B.C.D>

Sets the interface broadcast mask (the interface broadcast mask can be different from the interface mask). A.B.C.D is an IP address in a.b.c.d format.

Default

None

Command Mode

VLAN Interface Configuration

ip forward-protocol udp maxttl

Set the maximum time to live.

Syntax

- **default ip forward-protocol udp maxttl**
- **default ip forward-protocol udp maxttl <1-16>**
- **ip forward-protocol udp maxttl <1-16>**
- **ip forward-protocol udp vlan <1-4059> maxttl <1-16>**

Command Parameters

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot

configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

maxttl <1-16>

Sets the maximum time-to-live value (TTL) for the UDP broadcast forwarded by the interface. The range is 1 to 16.

Default

None

Command Mode

VLAN Interface Configuration

ip forward-protocol udp portfwdlist (on a VLAN)

Configure the UDP port forwarding list.

Syntax

- **ip forward-protocol udp portfwdlist <1-1000>**
- **ip forward-protocol udp vlan <1-4059> portfwdlist <1-1000>**
- **no ip forward-protocol udp portfwdlist**
- **no ip forward-protocol udp portfwdlist <1-1000>**

Command Parameters

<1-1000>

Creates a UDP port forwarding list in the range of 1 to 1000.

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

VLAN Interface Configuration

ip igmp access-list (for a VLAN)

Configure multicast access control for a VLAN to restrict access to certain multicast streams and to protect multicast streams from spoofing (injecting data to the existing streams).

Syntax

- **default ip igmp access-list WORD<1-64> {A.B.C.D/X}**
- **ip igmp access-list WORD<1-64> {A.B.C.D/X} {deny-tx | deny-rx | deny-both | allow-only-tx | allow-only-rx | allow-only-both}**
- **no ip igmp access-list WORD<1-64> {A.B.C.D/X}**

Command Parameters

{A.B.C.D/X}

Creates an access control group entry for a specific Internet Group Management Protocol (IGMP) interface. Specifies the IP address of the host and the subnet mask used to determine the host or hosts covered by this configuration. You can use the host subnet mask to restrict access to a portion of the network for the host.

deny-tx | deny-rx | deny-both | allowonly-tx | allowonly-rx | allowonly-both

Indicates the action for the specified Internet Group Management Protocol (IGMP) interface. For example, if you specify deny-both, the interface denies both transmitted and received traffic.

WORD<1-64>

Specifies the name of the access list from 1-64 characters.

Default

None

Command Mode

VLAN Interface Configuration

ip igmp access-list mode (for a VLAN)

Change an existing access list on the VLAN interface.

Syntax

- **default ip igmp access-list WORD<1-64> {A.B.C.D/X}**
- **ip igmp access-list WORD<1-64> {A.B.C.D/X} mode {deny-tx | deny-rx | deny-both | allowonly-tx | allow-only-rx | allow-only-both}**

- **no ip igmp access-list WORD<1-64> {A.B.C.D/X}**

Command Parameters

{A.B.C.D/X}

Creates an access control group entry for a specific Internet Group Management Protocol (IGMP) interface. Specifies the IP address of the host and the subnet mask used to determine the host or hosts covered by this configuration. You can use the host subnet mask to restrict access to a portion of the network for the host.

deny-tx | deny-rx | deny-both | allowonly-tx | allowonly-rx | allowonly-both

Indicates the action for the specified Internet Group Management Protocol (IGMP) interface. For example, if you specify deny-both, the interface denies both transmitted and received traffic.

WORD<1-64>

Specifies the name of the access list from 1-64 characters.

Default

None

Command Mode

VLAN Interface Configuration

ip igmp compatibility-mode (for a VLAN)

Enables IGMP v2-v3 compatibility mode.

Syntax

- **default ip igmp compatibility-mode**
- **ip igmp compatibility-mode**
- **no ip igmp compatibility-mode**

Default

The default value is disabled, which means IGMPv3 is not compatible with IGMPv1 or IGMPv2.

Command Mode

VLAN Interface Configuration

ip igmp dynamic-downgrade-version (for a VLAN)

Configures the version of Internet Group Management Protocol (IGMP) to handle older query messages if the system downgrades. If the system downgrades, the host with IGMPv3 only capability does not work. If you do not configure the system to downgrade the version of IGMP, the system logs a warning.

Syntax

- **default ip igmp dynamic-downgrade-version**
- **ip igmp dynamic-downgrade-version**
- **no ip igmp dynamic-downgrade-version**

Default

Enabled

Command Mode

VLAN Interface Configuration

ip igmp igmpv3-explicit-host-tracking (for a VLAN)

Track all the source and group members. You must enable explicit-host-tracking to use fast leave for IGMPv3.

Syntax

- **default ip igmp igmpv3-explicit-host-tracking**
- **ip igmp igmpv3-explicit-host-tracking**
- **no ip igmp igmpv3-explicit-host-tracking**

Default

The default is disabled.

Command Mode

VLAN Interface Configuration

ip igmp immediate-leave (for a VLAN)

Enable fast (immediate) leave mode to specify if a VLAN receives a leave message from a member of a group.

Syntax

- **default ip igmp immediate-leave**
- **ip igmp immediate-leave**
- **no ip igmp immediate-leave**

Default

None

Command Mode

VLAN Interface Configuration

ip igmp immediate-leave-members

Configure fast leave members on a VLAN to specify fast leave capable ports.

Syntax

- **default ip igmp immediate-leave-members {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **ip igmp immediate-leave-members {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **no ip igmp immediate-leave-members {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

VLAN Interface Configuration

ip igmp mrdisc

Configure the multicast route discovery options to enable the automatic discovery of multicast-capable routers.

Syntax

- **default ip igmp mrdisc**
- **default ip igmp mrdisc maxadvertinterval**
- **default ip igmp mrdisc maxinitadvertinterval**
- **default ip igmp mrdisc maxinitadvertisements**
- **default ip igmp mrdisc minadvertinterval**
- **default ip igmp mrdisc neighdeadinterval**
- **ip igmp mrdisc**
- **ip igmp mrdisc maxadvertinterval <2-180>**
- **ip igmp mrdisc maxinitadvertinterval <2-180>**
- **ip igmp mrdisc maxinitadvertisements <2-15>**
- **ip igmp mrdisc minadvertinterval <3-180>**
- **ip igmp mrdisc neighdeadinterval <2-180>**
- **no ip igmp mrdisc**

Command Parameters

maxadvertinterval <2-180>

Configures the maximum number (in seconds) between successive advertisements. For this change to take effect, you must save the configuration, and then reset the switch. The default is 20.

maxinitadvertinterval <2-180>

Configures the maximum number (in seconds) between successive initial advertisements. For this change to take effect, you must save the configuration, and then reset the switch. The default is 2.

maxinitadvertisements <2-15>

Configures the maximum number of initial multicast advertisements after initialization. For this change to take effect, you must save the configuration, and then reset the switch. The default is 3.

minadvertinterval <3-180>

Configures the minimum number (in seconds) between successive advertisements. For this change to take effect, you must save the configuration, and then reset the switch. The default is 15.

neighdeadinterval <2-180>

Configures the multicast router discovery dead interval-the number of seconds the multicast route neighbors for the switch must wait before assuming that the multicast router is down. The default is 60.

Default

None

Command Mode

VLAN Interface Configuration

ip igmp mrouter (for a VLAN)

Configures the multicast router ports.

Syntax

- **default ip igmp mrouter**
- **ip igmp mrouter {slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]}**
- **no ip igmp mrouter {slot/port[/sub-port][-slot/port[/sub-port]][,...] [slot/all][all]}**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

Default

None

Command Mode

VLAN Interface Configuration

ip igmp proxy (for a VLAN)

Configure the proxy-snoop option globally for a VLAN.

Syntax

- **default ip igmp proxy**
- **ip igmp proxy**
- **no ip igmp proxy**

Default

Disabled

Command Mode

VLAN Interface Configuration

ip igmp query-interval (for a VLAN)

Configure the frequency (in seconds) at which the VLAN transmits host query packets.

Syntax

- **default ip igmp query-interval**
- **ip igmp query-interval <1-65535>**

Command Parameters

<1-65535>

Specifies the frequency (in seconds) at which the VLAN transmits host query packets. The default is 125 seconds.

Default

The default is 125 seconds.

Command Mode

VLAN Interface Configuration

ip igmp query-max-response (for a VLAN)

Configure the maximum response time advertised in IGMPv2 general queries on a VLAN interface. You cannot configure this value for IGMPv1.

Syntax

- **default ip igmp query-max-response**
- **ip igmp query-max-response <0-255>**

Command Parameters

<0-255>

Specifies the maximum response time (in tenths of a second) advertised in IGMPv2 general queries on this interface. You cannot configure this value for IGMPv1. Smaller values enable a router to prune groups faster.

Important

You must configure this value lower than the query-interval.

Default

None

Command Mode

VLAN Interface Configuration

ip igmp robust-value (for a VLAN)

Configure the expected packet loss of a network.

Syntax

- **default ip igmp robust-value**
- **ip igmp robust-value <2-255>**

Command Parameters

<2-255>

Specifies the expected packet loss of a network. Increase the value if you expect the network to experience packet loss. The default is 2 seconds.

Default

The default is 2 seconds.

Command Mode

VLAN Interface Configuration

ip igmp routed-spb-querier-addr

Configures the address of the IGMP routed querier on **mvpn-isid** enabled interfaces, where no IP is configured on the VLAN.

Syntax

- **default ip igmp routed-spb-querier-addr**
- **ip igmp routed-spb-querier-addr {A.B.C.D}**
- **no ip igmp routed-spb-querier-addr**

Command Parameters

A.B.C.D

Specifies the IP address of the IGMP routed querier .

Default

The default is **0.0.0.0**.

Command Mode

VLAN Configuration Interface

ip igmp router-alert (for a VLAN)

Configure the router to ignore Internet Group Management Protocol (IGMP) packets that do not contain the router alert IP option. The default is disabled. When disabled, the router processes IGMP packets regardless of the status of the router alert IP option.

Syntax

- **default ip igmp router-alert**
- **ip igmp router-alert**
- **no ip igmp router-alert**

Default

Disabled

Command Mode

VLAN Interface Configuration

Usuage Guidelines

To maximize network performance, configure this parameter according to the version of IGMP currently in use:

- IGMPv1 - Disable
- IGMPv2 - Enable
- IGMPv3 - Enable

ip igmp snooping (for a VLAN)

Configure the snoop option for the VLAN.

Syntax

- **default ip igmp snooping**
- **ip igmp snooping**
- **no ip igmp snooping**

Default

Disabled

Command Mode

VLAN Interface Configuration

ip igmp snoop-querier

Enables the Layer 2 querier on a VLAN interface.

Syntax

- **default ip igmp snoop-querier**
- **ip igmp snoop-querier**
- **no ip igmp snoop-querier**

Default

The default is disabled.

Command Mode

VLAN Interface Configuration

ip igmp snoop-querier-addr

Configures the address of the IGMP snoop querier.

Syntax

- **default ip igmp snoop-querier-addr**
- **ip igmp snoop-querier-addr {A.B.C.D}**
- **no ip igmp snoop-querier-addr**

Command Parameters

{A.B.C.D}

Specifies the IP address.

Default

The default value is 0.0.0.0.

Command Mode

VLAN Interface Configuration

ip igmp static-group

Configure IGMP static members to add members to a snoop group.

Syntax

- **default ip igmp static-group {A.B.C.D}**
- **default ip igmp static-group {A.B.C.D} {A.B.C.D}**
- **default ip igmp static-group {A.B.C.D} {A.B.C.D} {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} { static | blocked }**
- **default ip igmp static-group {A.B.C.D} {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} { static | blocked }**
- **ip igmp static-group {A.B.C.D} {A.B.C.D} {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} { static | blocked }**
- **ip igmp static-group {A.B.C.D} {A.B.C.D} port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} { static | blocked }**
- **ip igmp static-group {A.B.C.D} {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} { static | blocked }**
- **ip igmp static-group {A.B.C.D} port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} { static | blocked }**
- **no ip igmp static-group {A.B.C.D}**

- **no ip igmp static-group {A.B.C.D} {A.B.C.D}**
- **no ip igmp static-group {A.B.C.D} {A.B.C.D} {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} { static | blocked }**

Command Parameters

[static|blocked]

Adds a static-member entry to the Internet Group Management Protocol (IGMP) interface. value is the port or list of ports to which you want to redirect the multicast stream for this multicast group. static|blocked configures the route to static or blocked.

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

<A.B.C.D> <A.B.C.D>

Indicates the IP address range from <A.B.C.D> to <A.B.C.D> of the selected multicast group.

Default

None

Command Mode

VLAN Interface Configuration

ip igmp stream-limit (for a VLAN)

Configure multicast stream limitation on a VLAN to limit the number of concurrent multicast streams on the VLAN.

Syntax

- **default ip igmp stream-limit**
- **ip igmp stream-limit**
- **ip igmp stream-limit stream-limit-max-streams <0-65535>**
- **no ip igmp stream-limit**

Command Parameters

stream-limit-max-streams <0-65535>

Sets the maximum number of streams allowed on an interface. The value ranges from 0 to 65535.

Default

None

Command Mode

VLAN Interface Configuration

ip igmp stream-limit-group

Configure multicast stream limitation members on ports of a specific VLAN to limit the number of multicast groups that can join a VLAN.

Syntax

- **default ip igmp stream-limit-group {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **default ip igmp stream-limit-group {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} enable**
- **ip igmp stream-limit-group {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} enable max-streams <0-65535>**
- **ip igmp stream-limit-group {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} max-streams <0-65535>**
- **no ip igmp stream-limit-group {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **no ip igmp stream-limit-group {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} enable**

Command Parameters

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

max-streams <0-65535>

Configures the maximum number of allowed streams for the specified ports on this VLAN. The range is from 0-65535 and the default is 4. To use the default configuration, use the default option in the command: default ip igmp stream-limit-group <ports>

Default

None

Command Mode

VLAN Interface Configuration

ip igmp upnp-filter (for a VLAN)

Configure Universal Plug and Play (uPnP) Filtering on a IGMP-enabled interface to drop all incoming multicast packets destined for any multicast group residing in a specific range.

Syntax

- **default ip igmp upnp-filter [ip <A.B.C.D/X>]**
- **ip igmp upnp-filter [ip <A.B.C.D/X>]**
- **no ip igmp upnp-filter**

Command Parameters

ip <A.B.C.D/X>

Specifies the multicast destination IP address range to filter. The default multicast group address is 239.255.255.250/32.

Default

The default is disabled.

Command Mode

VLAN Interface Configuration

ip igmp version (for a VLAN)

Configure the version of Internet Group Management Protocol (IGMP) on the interface.

Syntax

- **default ip igmp version**
- **ip igmp version <1-3>**

Command Parameters

<1-3>

Specifies the version of IGMP that you want to configure on this interface. For IGMP to function correctly, all routers on a LAN must use the same version. The default is 2 (IGMPv2).

Default

The default is 2 (IGMPv2).

Command Mode

VLAN Interface Configuration

ip interface enable (for a VLAN)

Enables or disables an IPv4 interface on a VLAN.

Syntax

- **default ip interface enable**
- **ip interface enable**
- **no ip interface enable**

Default

The default is enabled.

Command Mode

VLAN Interface Configuration

ip ipsec enable (for a VLAN)

Enable Internet Protocol Security (IPsec) for IPv4 on a VLAN.

Syntax

- **default ip ipsec enable**
- **ip ipsec enable**

- **no ip ipsec enable**

Default

The default is disabled.

Command Mode

VLAN Interface Configuration

ip ipsec policy (for a VLAN)

Link an Internet Protocol Security (IPsec) IPv4 policy to a VLAN.

Syntax

- **default ip ipsec policy WORD<1-32>**
- **ip ipsec policy WORD<1-32>**
- **ip ipsec policy WORD<1-32> dir both**
- **ip ipsec policy WORD<1-32> dir in**
- **ip ipsec policy WORD<1-32> dir out**
- **no ip ipsec policy WORD<1-32> dir both**
- **no ip ipsec policy WORD<1-32> dir in**
- **no ip ipsec policy WORD<1-32> dir out**

Command Parameters

dir <both|in|out>

Specifies the direction to which IPsec applies. Both specifies both ingress and egress traffic, in specifies ingress traffic, and out specifies egress traffic. By default, the direction is both.

WORD<1-32>

Specifies the IPsec policy name.

Default

None

Command Mode

VLAN Interface Configuration

ip irdp address (for a VLAN)

Configure Internet Control Message Protocol (ICMP) Router Discovery to enable hosts attached to multicast or broadcast networks to discover the IP addresses of their neighboring routers.

Syntax

- **default ip irdp address**
- **default ip irdp address <A.B.C.D>**
- **default ip irdp vlan <1-4059> address**
- **ip irdp address <A.B.C.D>**
- **ip irdp vlan <1-4059> address {A.B.C.D}**

Command Parameters

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

address <A.B.C.D>

Specifies the IP destination address use for broadcast or multicast router advertisements sent from the interface. The address is the all-systems multicast address, 224.0.0.1, or the limited-broadcast address, 255.255.255.255.

Default

The default address is 255.255.255.255.

Command Mode

VLAN Interface Configuration

ip irdp holdtime (for a VLAN)

Configure the lifetime for advertisements.

Syntax

- **default ip irdp holdtime**
- **default ip irdp vlan <1-4059> holdtime**

- **ip irdp holdtime <4-9000>**
- **ip irdp vlan <1-4059> holdtime <4-9000>**

Command Parameters

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

<4-4000>

Specifies the lifetime.

Default

The default is 1800.

Command Mode

VLAN Interface Configuration

ip irdp maxadvertinterval (for a VLAN)

Specify the maximum time (in seconds) that elapses between unsolicited broadcast or multicast router advertisement transmissions from the router interface.

Syntax

- **default ip irdp maxadvertinterval**
- **default ip irdp vlan <1-4059> maxadvertinterval**
- **ip irdp maxadvertinterval <4-1800>**
- **ip irdp vlan <1-4059> maxadvertinterval <4-1800>**

Command Parameters

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

<4-1800>

Specifies the maximum time in seconds.

Default

The default is 600 seconds.

Command Mode

VLAN Interface Configuration

ip irdp minadvertinterval (for a VLAN)

Specify the minimum time (in seconds) that elapses between unsolicited broadcast or multicast router advertisement transmissions from the interface. The range is 3 seconds to maxadvertinterval.

Syntax

- **default ip irdp minadvertinterval**
- **default ip irdp vlan <1-4059> minadvertinterval**
- **ip irdp minadvertinterval <3-1800>**
- **ip irdp vlan <1-4059> minadvertinterval <3-1800>**

Command Parameters

<3-1800>

Specifies the minimum time in seconds.

Default

The default is 450 seconds.

Command Mode

VLAN Interface Configuration

ip irdp multicast (for a VLAN)

Specify if multicast advertisements are sent.

Syntax

- **default ip irdp multicast**
- **default ip irdp vlan <1-4059> multicast**

- **ip irdp multicast**
- **ip irdp vlan <1-4059> multicast**
- **no ip irdp multicast**
- **no ip irdp vlan <1-4059> multicast**

Command Parameters

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

The default is enabled (true).

Command Mode

VLAN Interface Configuration

ip irdp preference (for a VLAN)

Specify the preference (a higher number indicates more preferred) of the address as a default router address relative to other router addresses on the same subnet.

Syntax

- **default ip irdp preference**
- **default ip irdp vlan <1-4059> preference**
- **ip irdp preference <-2147483648-2147483647>**
- **ip irdp vlan <1-4059> preference <-2147483648-2147483647>**

Command Parameters

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

<-2147483648-2147483647>

Specifies the preference value.

Default

The default is 0.

Command Mode

VLAN Interface Configuration

ip ospf advertise-when-down enable (for a VLAN)

Enable or disable AdvertiseWhenDown. If enabled, the network on this interface is advertised as up, even if the port is down. When you configure a VLAN with no link and enable advertise-when-down, the route is not advertised until the VLAN is active. Then the route is advertised even when the link is down. To disable advertising based on link status, this parameter must be disabled.

Syntax

- **default ip ospf advertise-when-down enable**
- **ip ospf advertise-when-down enable**
- **no ip ospf advertise-when-down enable**

Default

The default is disabled.

Command Mode

VLAN Interface Configuration

ip ospf area (for a VLAN)

Configure OSPF parameters on a VLAN to control how OSPF behaves.

Syntax

- **default ip ospf area**
- **ip ospf area {A.B.C.D}**
- **no ip ospf area**

Command Parameters

<A.B.C.D>

Configures the OSPF identification number for the area, typically formatted as an IP address.

Default

None

Command Mode

VLAN Interface Configuration

ip ospf authentication-key (for a VLAN)

Configure the eight-character simple password authentication key for the VLAN.

Syntax

- **ip ospf authentication-key WORD<0-8>**

Command Parameters

WORD<0-8>

Specifies the authentication key.

Default

None

Command Mode

VLAN Interface Configuration

ip ospf authentication-type (for a VLAN)

Configure the OSPF authentication type for the VLAN. If you choose simple, you must configure the password with the ip ospf authentiation-key WORD<0-8> command. If you choose MD5, you must configure the MD5 key with the ip ospf message-digest-key <1-255> md5 WORD<0-16> command.

Syntax

- **default ip ospf authentication-type**
- **ip ospf authentication-type message-digest**
- **ip ospf authentication-type none**
- **ip ospf authentication-type sha-1**
- **ip ospf authentication-type sha-2**

- **ip ospf authentication-type simple**
- **no ip ospf authentication-type**

Command Parameters

message-digest

Configures the authentication-type to message-digest. If you choose MD5, you must configure the MD5 key with the ip ospf message-digest-key <1-255> md5 WORD<0-16> command. Message Digest 5 (MD5) provides standards-based authentication using 128-bit encryption. If you use MD5, each OSPF packet has a message digest appended to it. The digest must match between sending and receiving routers, or the packet is discarded.

none

Configures the authentication-type to none.

sha-1

Configures the authentication-type to secure hash algorithm 1 (SHA-1). SHA-1 provides standards-based authentication using 128-bit encryption.

sha-2

sha-2—Specifies SHA-2, which offers the hash function SHA-256.



Note

The command parameter sha-2, an update of SHA-1, can offer six hash functions that include SHA-224, SHA-256, SHA-384, SHA-512, SHA-512/224,SHA 512/256, with hash values that are 224, 256, 384, or 512 bits. However, the current release supports only SHA-256.

simple

Configures the authentication-type to simple, which is a simple-text password. Only routers that contain the same authentication ID in their LSA can communicate with each other. Using a simple-text password is not a best practice for security. If you choose simple, you must configure the password with the **ip ospf authentiation-key WORD<0-8>** command.

Default

None

Command Mode

VLAN Interface Configuration

ip ospf bfd

Enable Bidirectional Forwarding Detection (BFD) for an OSPF VLAN interface.

Syntax

- **ip ospf bfd**
- **ip ospf bfd disable**

Default

The default is disable.

Command Mode

VLAN Interface Configuration

ip ospf cost (for a VLAN)

Configure the OSPF cost associated with this interface and advertised in router link advertisements.

Syntax

- **default ip ospf cost**
- **ip ospf cost <0-65535>**

Command Parameters

<1-65535>

Specifies the cost range.

Default

The default is 0.

Command Mode

VLAN Interface Configuration

ip ospf dead-interval (for a VLAN)

Configure the router OSPF dead interval-the number of seconds the OSPF neighbors of a switch must wait before assuming that the OSPF router is down. The value must be at least four times the Hello interval.

Syntax

- **default ip ospf dead-interval**
- **ip ospf dead-interval <0-2147483647>**

Command Parameters

<0-2147483647>

Specifies the number of seconds the OSPF neighbors of a switch must wait before assuming that the OSPF router is down. The value must be at least four times the Hello interval.

Default

The default is 40.

Command Mode

VLAN Interface Configuration

ip ospf digest-key (for a VLAN)

Configure the Digest algorithm key which can be of type MD5, SHA-1 or SHA-2. At most, you can configure two digest keys for an interface.

Syntax

- **default ip ospf digest-key <1-255>**
- **ip ospf digest-key <1-255> key WORD<0-16>**
- **no ip ospf digest-key <1-255>**

Command Parameters

<1-255>

Specifies the ID for the digest key.

<WORD> <0-16>

Specifies an alphanumeric password of up to 16 bytes (string length 0 to 16).

Default

None

Command Mode

VLAN Interface Configuration

ip ospf enable (for a VLAN)

Enable OSPF on the VLAN.

Syntax

- **default ip ospf enable**
- **ip ospf enable**
- **no ip ospf**
- **no ip ospf enable**

Default

The default is disabled.

Command Mode

VLAN Interface Configuration

ip ospf hello-interval (for a VLAN)

Configure the OSPF Hello interval, which is the number of seconds between Hello packets sent on this interface.

Syntax

- **default ip ospf hello-interval**
- **ip ospf hello-interval <1-65535>**

Command Parameters

<1-65535>

Specifies the Hello interval range in seconds. Dead Interval must be a multiple of Hello Interval.

Default

The default is 10.

Command Mode

VLAN Interface Configuration

ip ospf mtu-ignore enable (for a VLAN)

Enable maximum transmission unit (MTU) ignore. To allow the switch to accept OSPF database description (DBD) packets with a different MTU size, enable mtu-ignore. Incoming OSPF DBD packets are dropped if their MTU is greater than 1500 bytes.

Syntax

- **default ip ospf mtu-ignore enable**
- **ip ospf mtu-ignore enable**
- **no ip ospf mtu-ignore enable**

Default

None

Command Mode

VLAN Interface Configuration

ip ospf network (for a VLAN)

Specify the type of OSPF interface.

Syntax

- **default ip ospf network**
- **ip ospf network { broadcast | nbma | passive | p2p }**

Command Parameters

<broadcast|nbma|passive|p2p>

Specifies the interface type.

Default

The default is broadcast.

Command Mode

VLAN Interface Configuration

ip ospf poll-interval (for a VLAN)

Configure the OSPF poll interval in seconds.

Syntax

- **default ip ospf poll-interval**
- **ip ospf poll-interval <0-2147483647>**

Command Parameters

<0-2147483647>

Specifies the poll interval range in seconds.

Default

The default is 120.

Command Mode

VLAN Interface Configuration

ip ospf primary-digest-key (for a VLAN)

Changes the primary key used to encrypt outgoing packets. <1-255> is the ID for the new digest key.

Syntax

- **default ip ospf primary-digest-key**
- **ip ospf primary-digest-key <1-255>**

Command Parameters

<1-255>

Specifies the primay md5 key range.

Default

None

Command Mode

VLAN Interface Configuration

ip ospf priority (for a VLAN)

Configure the OSPF priority for the VLAN during the election process for the designated router. The VLAN with the highest priority number is the best candidate for the designated router. If you configure the priority to 0, the VLAN cannot become either the designated router or a backup designated router.

Syntax

- **default ip ospf priority**
- **ip ospf priority <0-255>**

Command Parameters

<0-255>

Specifies the priority range.

Default

The default is 1.

Command Mode

VLAN Interface Configuration

ip ospf retransmit-interval (for a VLAN)

Configure the retransmit interval for the virtual interface, the number of seconds between link-state advertisement retransmissions.

Syntax

- **default ip ospf retransmit-interval**
- **ip ospf retransmit-interval <0-3600>**

Command Parameters

<0-3600>

Specifies the retransmit interval range in seconds.

Default

None

Command Mode

VLAN Interface Configuration

ip ospf transit-delay (for a VLAN)

Configure the transit delay for the virtual interface, which is the estimated number of seconds required to transmit a link-state update over the interface.

Syntax

- **default ip ospf transit-delay**
- **default ip ospf transit-delay cost**
- **default ip ospf transit-delay mtu-ignore enable**

- **default ip ospf transit-delay priority**
- **ip ospf transit-delay <0-3600>**
- **ip ospf transit-delay <0-3600> cost <0-65535>**
- **ip ospf transit-delay <0-3600> mtu-ignore enable**
- **ip ospf transit-delay <0-3600> priority <0-255>**

Command Parameters

<0-3600>

Specifies the transit delay range.

cost <0-65535>

Configures the OSPF metric for the interface. The switch advertises the metric in router link advertisements. The default is 1.

mtu-ignore enable

Enables maximum transmission unit (MTU) ignore. To allow the switch to accept OSPF database description (DBD) packets with a different MTU size, enable mtu-ignore. Incoming OSPF DBD packets are dropped if their MTU is greater than 1500 bytes.

priority <0-255>

Configures the OSPF priority for the interface during the election process for the designated router. The interface with the highest priority number is the designated router. The interface with the second-highest priority becomes the backup designated router. If the priority is 0, the interface cannot become either the designated router or a backup. The priority is used only during election of the designated router and backup designated router. The default is 1.

Default

None

Command Mode

VLAN Interface Configuration

ip ospf vlan (for a VLAN)

Configure OSPF on a VLAN.

Syntax

- **default ip ospf vlan <1-4059>**
- **ip ospf vlan <1-4059> advertise-when-down enable**
- **ip ospf vlan <1-4059> area {A.B.C.D}**
- **ip ospf vlan <1-4059> authentication-key WORD<0-8>**

- **ip ospf vlan <1-4059> authentication-type message-digest**
- **ip ospf vlan <1-4059> authentication-type none**
- **ip ospf vlan <1-4059> authentication-type simple**
- **ip ospf vlan <1-4059> cost <0-65535>**
- **ip ospf vlan <1-4059> dead-interval <0-2147483647>**
- **ip ospf vlan <1-4059> enable**
- **ip ospf vlan <1-4059> hello-interval <1-65535>**
- **ip ospf vlan <1-4059> mtu-ignore enable**
- **ip ospf vlan <1-4059> network { broadcast | nbma | passive | p2p}**
- **ip ospf vlan <1-4059> poll-interval <0-2147483647>**
- **ip ospf vlan <1-4059> primary-md5-key <1-255>**
- **ip ospf vlan <1-4059> priority <0-255>**
- **ip ospf vlan <1-4059> retransmit-interval <0-3600>**
- **ip ospf vlan <1-4059> transit-delay <0-3600>**
- **no ip ospf vlan <1-4059>**

Command Parameters

<1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

advertise-when-down enable

Enables or disables AdvertiseWhenDown. If enabled, the network on this interface is advertised as up, even if the port is down. When you configure a VLAN with no link and enable advertise-when-down, the route is not advertised until the VLAN is active. Then the route is advertised even when the link is down. To disable advertising based on link status, this parameter must be disabled. The default is disabled.

area {A.B.C.D}

Configures OSPF parameters on a VLAN to control how OSPF behaves.

authentication-key WORD<0-8>

Configures the eight-character simple password authentication key for the VLAN.

authentication-type

Configures the OSPF authentication type for the VLAN. If simple, all OSPF updates the interface receives must contain the authentication key specified by the area authentication-key command. If MD5, they must contain the MD5 key. The default is none.

cost <0-65535>

Configures the OSPF cost associated with this interface and advertised in router link advertisements. The default is 0.

dead-interval <0-2147483647>

Configures the router OSPF dead interval-the number of seconds the OSPF neighbors of a switch must wait before assuming that the OSPF router is down. The value must be at least four times the Hello interval. The default is 40.

enable

Enables OSPF on the VLAN. The default is disabled.

hello-interval <1-65535>

Configures the OSPF Hello interval, which is the number of seconds between Hello packets sent on this interface. The default is 10.

mtu-ignore enable

Enables maximum transmission unit (MTU) ignore. To enable the switch to accept OSPF database description (DBD) packets with a different MTU size, enable mtu-ignore. Incoming OSPF DBD packets are dropped if their MTU is greater than 1500 bytes.

network { broadcast | nbma | passive | p2p}

Specifies the type of OSPF interface.

poll-interval <0-2147483647>

Configures the OSPF poll interval in seconds. The default is 120.

primary-md5-key <1-255>

Changes the primary key used to encrypt outgoing packets. <1-255> is the ID for the new message digest key.

priority <0-255>

Configures the OSPF priority for the VLAN during the election process for the designated router. The VLAN with the highest priority number is the best candidate for the designated router. If you configure the priority to 0, the VLAN cannot become either the designated router or a backup designated router. The default is 1.

retransmit-interval <0-3600>

Configures the retransmit interval for the virtual interface, the number of seconds between link-state advertisement retransmissions.

transit-delay <0-3600>

Configures the transit delay for the virtual interface, which is the estimated number of seconds required to transmit a link-state update over the interface.

Default

None

Command Mode

VLAN Interface Configuration

ip pim (for a VLAN)

Enable PIM on the specified VLAN.

Syntax

- **default ip pim enable**
- **default ip pim hello-interval**
- **default ip pim join-prune-interval**
- **ip pim active**
- **ip pim enable**
- **ip pim hello-interval <0-18724>**
- **ip pim join-prune-interval <1-18724>**
- **ip pim passive**
- **no ip pim enable**

Command Parameters

active

Enable PIM and configure the interface type to active or passive to perform multicasting operations.

enable

Configure PIM for each interface to enable the interface to perform multicasting operations.

hello-interval <0-18724>

Specify how long to wait (in seconds) before the PIM switch sends out the next hello message to neighboring switches.

join-prune-interval <1-18724>

Specify how long to wait (in seconds) before the PIM router sends out the next join/prune message to its upstream neighbors.

passive

Enable PIM and Configure the interface type to passive simultaneously. By default, an enabled interface is active.

Default

None

Command Mode

VLAN Interface Configuration

ip pim bsr-candidate preference (for a VLAN)

Configure additional routers as candidate BSRs (C-BSR) to provide backup protection in the event that the primary BSR fails.

Syntax

- **default ip pim bsr-candidate**
- **ip pim bsr-candidate preference <0-255>**
- **no ip pim bsr-candidate**

Command Parameters

preference <0-255>

Configure additional routers as candidate BSRs (C-BSR) to provide backup protection in the event that the primary BSR fails.

Default

None

Command Mode

VLAN Interface Configuration

ip pim interface-type (for a VLAN)

Specify whether the selected interface is active or passive. You can change the state of a PIM interface after you create the interface but only if you disable PIM on the interface. An active interface accepts PIM control transmitted and received traffic. A passive interface prevents PIM control traffic from transmitting or receiving, thereby reducing the load on a system. Use this feature when a high number of PIM interfaces exist and connect to end users, not to other switches.

Syntax

- **default ip pim interface-type**
- **ip pim interface-type active**
- **ip pim interface-type passive**

Command Parameters

<active|passive>

Specifies the interface type.

Default

The default is active.

Command Mode

VLAN Interface Configuration

ip rip advertise-when-down enable (for a VLAN)

Enable or disable AdvertiseWhenDown. If enabled, the network on this interface is advertised as up, even if the port is down. The default is disabled. When you configure a port with no link and enable advertise-when-down, it does not advertise the route until the port is active. Then the route is advertised even when the link is down. To disable advertising based on link status, this parameter must be disabled.

Syntax

- **default ip rip advertise-when-down enable**
- **ip rip advertise-when-down enable**
- **no ip rip advertise-when-down enable**

Command Parameters

<enable|disable>

Enables or disables AdvertiseWhenDown. If enabled, the network on this interface is advertised as up, even if the port is down. The default is disabled. When you configure a port with no link and enable advertise-when-down, it does not advertise the route until the port is active. Then the route is advertised even when the link is down. To disable advertising based on link status, this parameter must be disabled.

Default

The default is disabled.

Command Mode

VLAN Interface Configuration

ip rip auto-aggregation enable (for a VLAN)

Enable or disable automatic route aggregation on the port. When enabled, the router switch automatically aggregates routes to their natural mask when they are advertised on an interface in a different class network. The default is disabled.

Syntax

- **default ip rip auto-aggregation enable**
- **ip rip auto-aggregation enable**
- **no ip rip auto-aggregation enable**

Command Parameters

enable

Enables or disables automatic route aggregation on the port. When enabled, the router switch automatically aggregates routes to their natural mask when they are advertised on an interface in a different class network. The default is disabled.

Default

The default is disabled.

Command Mode

VLAN Interface Configuration

ip rip cost (for a VLAN)

Configure the RIP cost for this port (link).

Syntax

- **default ip rip cost**
- **ip rip cost <1-15>**

Command Parameters

<1-15>

Configures the RIP cost for this interface.

Default

None

Command Mode

VLAN Interface Configuration

ip rip default-listen enable (for a VLAN)

Enable default listen: the switch accepts the default route learned through RIP on this interface. The default is disabled.

Syntax

- **default ip rip default-listen enable**
- **ip rip default-listen enable**
- **no ip rip default-listen enable**

Command Parameters

enable

Enables DefaultListen: the switch accepts the default route learned through RIP on this interface. The default is disabled.

Default

The default is disabled.

Command Mode

VLAN Interface Configuration

ip rip default-supply enable (for a VLAN)

Enable default supply. If enabled, a default route must be advertised from this interface. The default is false. The default route is advertised only if it exists in the routing table. The default route will not be advertised on RIP interfaces by default. You need to redistribute the default route, and then configure the default-supply at the interface for the default route to be advertised to the neighbor.

Syntax

- **default ip rip default-supply enable**
- **ip rip default-supply enable**
- **no ip rip default-supply enable**

Command Parameters

enable

Enables DefaultSupply. If enabled, a default route must be advertised from this interface. The default is false. The default route is advertised only if it exists in the routing table.

Default

The default is false.

Command Mode

VLAN Interface Configuration

ip rip enable (for a VLAN)

Enable RIP routing on the interface.

Syntax

- **ip rip enable**
- **no ip rip enable**

Command Parameters

enable

Enables RIP routing on the interface.

Default

The default is disabled.

Command Mode

VLAN Interface Configuration

ip rip holddown (for a VLAN)

Configure the RIP holddown timer value, the length of time (in seconds) that RIP continues to advertise a network after determining that it is unreachable. The default is 120.

Syntax

- **default ip rip holddown**
- **ip rip holddown <0-360>**

Command Parameters

<0-360>

Configures the RIP holddown timer value, the length of time (in seconds) that RIP continues to advertise a network after determining that it is unreachable. The default is 120.

Default

The default is 120.

Command Mode

VLAN Interface Configuration

ip rip in-policy (for a VLAN)

Configure the port RIP in-policy. The policy name for inbound filtering on this RIP interface. This policy determines whether to learn a route on this interface. It also specifies the parameters of the route when it is added to the routing table.

Syntax

- **default ip rip in-policy**
- **ip rip in-policy WORD<0-64>**

Command Parameters

WORD<0-64>

Configures the port RIP in-policy. The policy name for inbound filtering on this RIP interface. This policy determines whether to learn a route on this interface. It also specifies the parameters of the route when it is added to the routing table.

Default

None

Command Mode

VLAN Interface Configuration

ip rip listen enable (for a VLAN)

If enabled, the switch listens for a default route without listening for all routes. Specify that the routing switch learns RIP routes through this interface. The default is enable.

Syntax

- **default ip rip listen enable**
- **ip rip listen enable**
- **no ip rip listen enable**

Default

The default is enabled.

Command Mode

VLAN Interface Configuration

ip rip out-policy (for a VLAN)

Configure the port RIP out-policy. The policy name for outbound filtering on this RIP interface. This policy determines whether to advertise a route from the routing table on this interface. This policy also Specify the parameters of the advertisement. policy name is a string of length 0 to 64 characters.

Syntax

- **default ip rip out-policy**
- **ip rip out-policy WORD<0-64>**

Command Parameters

WORD<0-64>

Configures the port RIP out-policy. The policy name for outbound filtering on this RIP interface. This policy determines whether to advertise a route from the routing table on this interface. This policy also specifies the parameters of the advertisement. policy name is a string of length 0 to 64 characters.

Default

None

Command Mode

VLAN Interface Configuration

ip rip poison enable (for a VLAN)

Enable Poison Reverse. If you disable Poison Reverse (no poison enable), Split Horizon is enabled. By default, Split Horizon is enabled. If Split Horizon is enabled, IP routes learned from an immediate neighbor are not advertised back to the neighbor. If Poison Reverse is enabled, the RIP updates sent to a neighbor from which a route is learned are poisoned with a metric of 16. Therefore, the receiver neighbor ignores this route because the metric 16 indicates infinite hops in the network. These mechanisms prevent routing loops.

Syntax

- **default ip rip poison enable**
- **ip rip poison enable**
- **no ip rip poison enable**

Command Parameters

enable

Enables Poison Reverse. If you disable Poison Reverse (no poison enable), Split Horizon is enabled. By default, Split Horizon is enabled. If Split Horizon is enabled, IP routes learned from an immediate neighbor are not advertised back to the neighbor. If Poison Reverse is enabled, the RIP updates sent to a neighbor from which a route is learned are poisoned with a metric of 16. Therefore, the receiver neighbor ignores this route because the metric 16 indicates infinite hops in the network. These mechanisms prevent routing loops.

Default

The default is disabled.

Command Mode

VLAN Interface Configuration

ip rip receive version (for a VLAN)

Indicate which RIP update version is accepted on this interface. The default is rip1orrip2.

Syntax

- **default ip rip receive version**
- **ip rip receive version { rip1 | rip2 | rip1orrip2 }**

Command Parameters

<rip1|rip2|rip1orrip2>

Indicates which RIP update version is accepted on this interface. The default is rip1orrip2.

Default

The default is rip1orrip 2.

Command Mode

VLAN Interface Configuration

ip rip send (for a VLAN)

Indicate which RIP update version the router sends from this interface. ripVersion1 implies sending RIP updates that comply with RFC 1058. rip1Compatible implies broadcasting RIP2 updates using RFC 1058 route subassumption rules. The default is rip1Compatible

Syntax

- **ip rip send version { notsend | rip1 | rip1comp | rip2 }**
- **ip rip send version { notsend | rip1 | rip1comp | rip2 } timeout <15-259200>**

Command Parameters

<notsend|rip1|rip2|rip1comp|rip2>

Indicates which RIP update version the router sends from this interface. ripVersion1 implies sending RIP updates that comply with RFC 1058. rip1Compatible implies broadcasting RIP2 updates using RFC 1058 route subassumption rules. The default is rip1Compatible

Default

The default is rip1Compatible.

Command Mode

VLAN Interface Configuration

ip rip supply (for a VLAN)

Specify that the switch advertises RIP routes through the port. The default is enable.

Syntax

- **default ip rip supply enable**
- **ip rip supply enable**
- **no ip rip supply enable**

Command Parameters

<enable|disable>

Specifies that the switch advertises RIP routes through the port. The default is enable.

Default

The default is enabled.

Command Mode

VLAN Interface Configuration

ip rip timeout (for a VLAN)

Configure the RIP timeout interval in seconds.

Syntax

- **ip rip timeout <15-259200>**

Command Parameters

<15-259200>

Configures the RIP timeout interval in seconds.

Default

None

Command Mode

VLAN Interface Configuration

ip rip triggered (for a VLAN)

Enable automatic triggered updates for RIP.

Syntax

- **default ip rip triggered enable**
- **ip rip triggered enable**
- **no ip rip triggered enable**

Command Parameters

enable

Enables automatically triggered updates for RIP.

Default

The default is disabled.

Command Mode

VLAN Interface Configuration

ip rsmlt

Configure Routed Split MultiLink Trunking (RSMLT) on an IPv4 VLAN interface.

Syntax

- **default ip rsmlt**
- **default ip rsmlt holddown-timer**
- **default ip rsmlt holddown-timer holdup-timer**
- **default ip rsmlt holdup-timer**
- **ip rsmlt**
- **ip rsmlt holddown-timer <0-3600>**
- **ip rsmlt holddown-timer <0-3600> holdup-timer <0-9999>**
- **ip rsmlt holdup-timer <0-9999>**
- **no ip rsmlt**

Command Parameters

holddown-timer<0-3600>

Defines how long the RSMLT switch does not participate in Layer 3 forwarding. <0-3600> is the timer value in seconds.Configure this value to be longer than the anticipated routing protocol convergence. The default holddown timer is 60.

holdup-timer<0-3600|9999>

Defines how long the RSMLT switch maintains forwarding for its peer. 0-3600 is the timer value in seconds. 9999 means infinity. The default holdup timer is 1800.

Default

None

Command Mode

VLAN Interface Configuration

ip spb-multicast enable (for a VLAN)

Enables Layer 3 VSN IP multicast over SPBM.

Syntax

- **default ip spb-multicast enable**
- **ip spb-multicast enable**
- **no ip spb-multicast enable**

Default

The default is disabled.

Command Mode

VLAN Interface Configuration

ip spb-pim-gw enable (for a VLAN)

Enable SPB-PIM Gateway on a VLAN interface.

Syntax

- **default p spb-pim-gw enable**
- **ip spb-pim-gw enable**
- **no ip spb-pim-gw enable**

Default

The default is disabled.

Command Mode

VLAN Interface Configuration

ip spb-pim-gw hello-interval (for a VLAN)

Configures the SPB-PIM Gateway VLAN HELLO interval.

Syntax

- **default ip spb-pim-gw hello-interval <0-18724>**
- **ip spb-pim-gw hello-interval <0-18724>**
- **no ip spb-pim-gw hello-interval <0-18724>**

Command Parameters

<0-18724>

Specifies the HELLO interval in seconds. The default value is 30 seconds.

Default

The default value is 30 seconds.

Command Mode

VLAN Interface Configuration

ip spb-pim-gw ip join-prune-interval (for a VLAN)

Configures the SPB-PIM Gateway VLAN JOIN PRUNE interval.

Syntax

- **default ip spb-pim-gw ip join-prune-interval <1-18724>**
- **ip spb-pim-gw ip join-prune-interval <1-18724>**
- **no ip spb-pim-gw ip join-prune-interval <1-18724>**

Command Parameters

<1-18724>

Specifies the JOIN PRUNE interval in seconds. The default value is 60 seconds.

Default

The default value is 60 seconds.

Command Mode

VLAN Interface Configuration

ip vrrp (for a VLAN)

Configure Virtual Router Redundancy Protocol (VRRP) on a VLAN.

Syntax

- **default ip vrrp <1-255> [enable]**
- **ip vrrp <1-255> enable**
- **no ip vrrp <1-255> [enable]**

Command Parameters

<1-255>

Specifies a unique integer value that represents the virtual router ID. The virtual router acts as the default router for one or more assigned addresses.

enable

Enables Virtual Router Redundancy Protocol (VRRP) on the interface.

Default

The default is disabled.

Command Mode

VLAN Interface Configuration

ip vrrp <1-255> action

Configures the action of the routing interface.

Syntax

- **default ip vrrp <1-255> action**
- **ip vrrp <1-255> action {none | preempt}**

Command Parameters

<1-255>

Specifies a unique integer value that represents the virtual router ID. The virtual router acts as the default router for one or more assigned addresses.

{none|preempt}

Specifies the action of the routing interface:

- none—do not override the holddown timer
- preempt—override the holddown timer

Default

The default is none.

Command Mode

VLAN Interface Configuration

Usage Guidelines

This command applies only if the holddown timer is active.

ip vrrp <1-255> adver-int

Configures the time interval between sending Virtual Router Redundancy Protocol (VRRP) advertisement messages.

Syntax

- **default ip vrrp <1-255> adver-int**
- **ip vrrp <1-255> adver-int <1-255>**

Command Parameters

<1-255>

Specifies a unique integer value that represents the virtual router ID. The virtual router acts as the default router for one or more assigned addresses.

<1-255>

Specifies the time interval (in seconds) between sending Virtual Router Redundancy Protocol (VRRP) advertisement messages. This value must be the same on all the participating routers.

Default

The default is 1 second.

Command Mode

VLAN Interface Configuration

ip vrrp <1-255> backup-master enable

Enables the Virtual Router Redundancy Protocol (VRRP) backup master.

Syntax

- **default ip vrrp <1-255> backup-master enable**
- **ip vrrp <1-255> backup-master enable**
- **no ip vrrp <1-255> backup-master enable**

Command Parameters

<1-255>

Specifies a unique integer value that represents the virtual router ID. The virtual router acts as the default router for one or more assigned addresses.

Default

The default is disabled.

Command Mode

VLAN Interface Configuration

Usage Guidelines

This option is supported only on Split MultiLink Trunking (SMLT) ports.

Do not enable Backup Master if critical IP is enabled.

ip vrrp <1-255> critical-ip enable

Enables the critical IP address for VRRP.

Syntax

- **default ip vrrp <1-255> critical-ip enable**
- **ip vrrp <1-255> critical-ip enable**

Command Parameters

<1-255>

Specifies a unique integer value that represents the virtual router ID. The virtual router acts as the default router for one or more assigned addresses.

Default

None

Command Mode

VLAN Interface Configuration

Usage Guidelines

Do not enable Critical IP if Backup Master is enabled.

ip vrrp <1-255> critical-ip-addr

Configures the critical IP address for VRRP.

Syntax

- **default ip vrrp <1-255> critical-ip-addr**
- **ip vrrp <1-255> critical-ip-addr {A.B.C.D}**

Command Parameters

<1-255>

Specifies a unique integer value that represents the virtual router ID. The virtual router acts as the default router for one or more assigned addresses.

<A.B.C.D>

Specifies the critical IP address for VRRP. *A.B.C.D* is the IP address on the local router, which is configured so that a change in its state causes a role switch in the virtual router (for example, from master to backup in case the interface goes down).

Default

None

Command Mode

VLAN Interface Configuration

ip vrrp <1-255> fast-adv enable

Enables the Fast Advertisement Interval.

Syntax

- **default ip vrrp <1-255> fast-adv enable**
- **ip vrrp <1-255> fast-adv enable**
- **no ip vrrp <1-255> fast-adv enable**

Command Parameters

<1-255>

Specifies a unique integer value that represents the virtual router ID. The virtual router acts as the default router for one or more assigned addresses.

Default

The default is disabled.

Command Mode

VLAN Interface Configuration

ip vrrp <1-255> fast-adv-int

Configures the time interval between sending VRRP advertisement messages.

Syntax

- **default ip vrrp <1-255> fast-adv-int**
- **ip vrrp <1-255> fast-adv-int <200-1000>**

Command Parameters

<1-255>

Specifies a unique integer value that represents the virtual router ID. The virtual router acts as the default router for one or more assigned addresses.

<200-1000>

Specifies the time interval in milliseconds between sending VRRP advertisement messages.

The range must be the same on all participating routers. You must enter values in multiples of 200 milliseconds.

Default

The default is 200.

Command Mode

VLAN Interface Configuration

ip vrrp <1-255> holddown-timer

Configures the time interval (in seconds) to wait before preempting the current VRRP primary router.

Syntax

- **default ip vrrp <1-255> holddown-timer**
- **ip vrrp <1-255> holddown-timer <0-21600>**

Command Parameters

<1-255>

Specifies a unique integer value that represents the virtual router ID. The virtual router acts as the default router for one or more assigned addresses.

<0-21600>

Specifies the time interval (in seconds) to wait before preempting the current VRRP primary router.

Default

The default is 0.

Command Mode

VLAN Interface Configuration

ip vrrp <1-255> preempt-mode enable

Enables preempt mode for vrrp (v3). If a new router is added to the network with its priority higher than the existing routers,then the new router becomes the master.

Syntax

- **default ip vrrp <1-255> preempt-mode**
- **ip vrrp <1-255> preempt-mode enable**
- **no ip vrrp <1-255> preempt-mode enable**

Command Parameters

<1-255>

Specifies a unique integer value that represents the virtual router ID. The virtual router acts as the default router for one or more assigned addresses.

Default

The default is enabled.

Command Mode

VLAN Interface Configuration

ip vrrp <1-255> priority

Configures the port Virtual Router Redundancy Protocol (VRRP) priority.

Syntax

- **default ip vrrp <1-255> priority**
- **ip vrrp <1-255> priority <1..254>**

Command Parameters

<1-255>

Specifies a unique integer value that represents the virtual router ID. The virtual router acts as the default router for one or more assigned addresses.

<1..254>

Specifies the priority value used by this VRRP router. The value 255 is reserved for the router that owns the IP addresses associated with the virtual router.

Default

The default is 100.

Command Mode

VLAN Interface Configuration

ip vrrp address (for a VLAN)

Specifies an address to associate with the virtual router.

Syntax

- **default ip vrrp address <1-255>**
- **ip vrrp address <1-255> {A.B.C.D}**
- **no ip vrrp address <1-255> [A.B.C.D]**

Command Parameters

{A.B.C.D}

Specifies an IP address to associate with the virtual router.

<1-255>

Specifies the virtual router ID. The virtual router acts as the default router for one or more associated addresses.

Default

None

Command Mode

VLAN Interface Configuration

Usage Guidelines

You can create secondary virtual IP addresses on VLAN interfaces using this same command. The first address you configure is the primary virtual IP address. Secondary virtual IP addresses must be in the same subnet as a Secondary IP Interface on the VLAN.

ip vrrp pseudo-header-checksum (for a VLAN)

Configure the type of checksum computation, with Pseudo Header or without Pseudo Header.

Syntax

- **default ip vrrp pseudo-header-checksum**
- **ip vrrp pseudo-header-checksum**
- **no ip vrrp pseudo-header-checksum**

Default

The default is disabled.

Command Mode

VLAN Interface Configuration

ip vrrp version (for a VLAN)

Configure the VRRP version on an interface.

Syntax

- **default ip vrrp version**
- **ip vrrp version <2-3>**

Command Parameters

<2-3>

Specifies the VRRP version 2 or 3 on an interface.

Default

The default is 2.

Command Mode

VLAN Interface Configuration

ipv6 bfd (for a VLAN)

Enable and configure Bidirectional Forwarding Detection (BFD) on a VLAN.

Syntax

- **default ipv6 bfd enable**
- **default ipv6 bfd interval**
- **default ipv6 bfd min-rx**
- **default ipv6 bfd multiplier**
- **default ipv6 bfd vlan**
- **ipv6 bfd enable**
- **ipv6 bfd interval**
- **ipv6 bfd min-rx**
- **ipv6 bfd multiplier**
- **ipv6 bfd vlan**
- **no ipv6 bfd**
- **no ipv6 bfd vlan**

Command Parameters

enable

Enable BFD on a VLAN.

interval

Specifies the transmit interval in milliseconds. The default is 200 ms.

The minimum value for the transmit interval is 100 ms. You can configure a maximum of 4 BFD sessions with the minimum value for the transmit interval. You can configure the remaining BFD sessions with a transmit interval that is greater than or equal to the 200 ms default value.

min-rx

Specifies the receive interval in milliseconds. The default is 200 ms.

The minimum value for the receive interval is 100 ms. You can configure a maximum of 4 BFD sessions with the minimum value for the receive interval. You can configure the remaining BFD sessions with a receive interval that is greater than or equal to the 200 ms default value.

multiplier

Specifies the multiplier used to calculate the amount of time BFD waits before it declares a receive timeout. The default is 3.

If you configure the transmit interval or the receive interval as 100 ms, you must configure a value of 4 or greater for the multiplier.

vlan <1-4094>

Specifies the VLAN ID in the range of 1-4094.

Default

The default is disabled.

Command Mode

VLAN Interface Configuration

Usage Guidelines

This command is available for demonstration purposes only. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

ipv6 dhcp-relay (for a VLAN)

Configure Dynamic Host Configuration Protocol (DHCP) Relay on an interface. The command no ipv6 dhcp-relay disables DHCP on the interface; it does not delete the entry.

Syntax

- **default ipv6 dhcp-relay**
- **default ipv6 dhcp-relay fwd-path WORD<0-255>**
- **default ipv6 dhcp-relay max-hop**
- **default ipv6 dhcp-relay remote-id**
- **ipv6 dhcp-relay**
- **ipv6 dhcp-relay fwd-path WORD<0-255>**
- **ipv6 dhcp-relay fwd-path WORD<0-255> enable**
- **ipv6 dhcp-relay fwd-path WORD<0-255> vrid WORD<1-255>**
- **ipv6 dhcp-relay max-hop <1-32>**
- **ipv6 dhcp-relay remoteId**
- **no ipv6 dhcp-relay**
- **no ipv6 dhcp-relay fwd-path WORD<0-255>**
- **no ipv6 dhcp-relay fwd-path WORD<0-255> enable**
- **no ipv6 dhcp-relay remoteId**

Command Parameters

max-hop <1-32>

Configures the maximum number of hops before a BootP/DHCP packet is discarded. The default is 32.

remoteId

Enables the Remote ID. The default is disabled.

vrid WORD<1-255>

Specifies the ID of the virtual router and is an integer from 1-255.

WORD<0-255>

Creates a forwarding path to the Dynamic Host Configuration Protocol (DHCP) server with a mode and a state. WORD<0-255> is the IPv6 address of the server. The default IP address of the relay is the address of the interface. If the relay is a Virtual Router configured on this interface, you must set the vrid. By default, the forwarding path is disabled.

Default

None

Command Mode

VLAN Interface Configuration

ipv6 fhs nd-inspection enable (for a VLAN)

Enables neighbor discovery (ND) inspection on a VLAN.

Syntax

- **default ipv6 fhs nd-inspection enable**
- **ipv6 fhs nd-inspection enable**
- **no ipv6 fhs nd-inspection enable**

Default

The default is disabled.

Command Mode

VLAN Interface Configuration

ipv6 fhs snooping dhcp enable (for a VLAN)

Enables or disables IPv6 DHCP snooping on a particular VLAN.

Syntax

- **default ipv6 fhs snooping dhcp enable**
- **ipv6 fhs snooping dhcp enable**

- **no ipv6 fhs snooping dhcp enable**

Default

The default is disabled.

Command Mode

VLAN Interface Configuration

ipv6 forwarding (for a VLAN)

Configure IPv6 forwarding. By default, IPv6 forwarding is globally disabled, which means you can only use local IPv6 connections, and traffic does not traverse an IPv6 network.

Syntax

- **default ipv6 forwarding**
- **ipv6 forwarding**
- **no ipv6 forwarding**

Default

By default, forwarding is enabled on an interface. You must enable it globally before the interface configuration takes effect.

Command Mode

VLAN Interface Configuration

ipv6 interface address (for a VLAN)

Configure the IPv6 address for a VLAN.

Syntax

- **ipv6 interface address WORD<0-255>**
- **no ipv6 interface address WORD<0-255>**

Command Parameters

WORD<0-255>

Assigns an IPv6 address to the VLAN.

Default

None

Command Mode

VLAN Interface Configuration

ipv6 interface enable (for a VLAN)

Enable IPv6 route advertisement on a VLAN.

Syntax

- **default ipv6 interface enable**
- **ipv6 interface enable**
- **no ipv6 interface enable**

Default

The default is disabled.

Command Mode

VLAN Interface Configuration

ipv6 interface hop-limit (for a VLAN)

Configure the maximum number of hops before packets drop.

Syntax

- **default ipv6 interface hop-limit**
- **ipv6 interface hop-limit <1-255>**
- **ipv6 interface link-local WORD<0-19>**

Command Parameters

<1-255>

Configures the maximum hops.

Default

The default is 64 hops.

Command Mode

VLAN Interface Configuration

ipv6 interface link-local (for a VLAN)

Create a link-local address for the VLAN.

Syntax

- **ipv6 interface link-local WORD<0-19>**

Command Parameters

WORD<0-19>

Specifies the 64-bit interface ID used to calculate the actual link-local address.

Default

None

Command Mode

VLAN Interface Configuration

ipv6 interface mac-offset

Request a MAC for an IPv6 VLAN.

Syntax

- **ipv6 interface mac-offset <0-511>**

Command Parameters

<0-511>

Specifies a number by which to offset the MAC address from the chassis MAC address. This ensures that each IP address has a different MAC address. If you omit this variable, a unique MAC offset is automatically generated.

Default

None

Command Mode

VLAN Interface Configuration

ipv6 interface mtu (for a VLAN)

Configure the maximum transmission unit for the VLAN.

Syntax

- **default ipv6 interface mtu**
- **ipv6 interface mtu <1280-9500>**

Command Parameters

<1280-9500>

Configures the maximum transmission unit for the interface: 1280-1500, 1850, or 9500.

Default

The default is 1500.

Command Mode

VLAN Interface Configuration

Usage Guidelines

The MTU value is not configurable on 5320 Series, 5420 Series, or 5720 Series.

ipv6 interface name (for a VLAN)

Configure an interface description for the VLAN.

Syntax

- **ipv6 interface name WORD<0-255>**

Command Parameters

WORD<0-255>

Assigns a descriptive name to the VLAN.

Default

None

Command Mode

VLAN Interface Configuration

ipv6 interface reachable-time (for a VLAN)

Configure the time a neighbor is considered reachable after receiving a reachability confirmation.

Syntax

- **default ipv6 interface reachable-time**
- **ipv6 interface reachable-time <1-3600000>**

Command Parameters

<1-3600000>

Configures the time, in milliseconds, a neighbor is considered reachable after receiving a reachability confirmation.

Default

The default is 30000.

Command Mode

VLAN Interface Configuration

ipv6 interface retransmit-timer (for a VLAN)

Configure the time, between retransmissions of Neighbor Solicitation messages to a neighbor when resolving the address or when probing the reachability of a neighbor.

Syntax

- **default ipv6 interface retransmit-timer**
- **ipv6 interface retransmit-timer <1-4294967295>**

Command Parameters

<1-4294967295>

Configures the time, in milliseconds, between retransmissions of Neighbor Solicitation messages to a neighbor when resolving the address or when probing the reachability of a neighbor.

Default

The default is 1000.

Command Mode

VLAN Interface Configuration

ipv6 ipsec enable (for a VLAN)

Enable Internet Protocol Security (IPsec) for IPv6 on a VLAN.

Syntax

- **default ipv6 ipsec enable**
- **ipv6 ipsec enable**
- **no ipv6 ipsec enable**

Default

The default is disabled.

Command Mode

VLAN Interface Configuration

ipv6 ipsec policy (for a VLAN)

Link an Internet Protocol Security (IPsec) IPv6 policy to a VLAN.

Syntax

- **default ipv6 ipsec policy WORD<1-32>**
- **ipv6 ipsec policy WORD<1-32>**
- **ipv6 ipsec policy WORD<1-32> dir both**
- **ipv6 ipsec policy WORD<1-32> dir in**
- **ipv6 ipsec policy WORD<1-32> dir out**
- **no ipv6 ipsec policy WORD<1-32> dir both**
- **no ipv6 ipsec policy WORD<1-32> dir in**
- **no ipv6 ipsec policy WORD<1-32> dir out**

Command Parameters

dir <both|in|out>

Specifies the direction to which IPsec applies. Both specifies both ingress and egress traffic, in specifies ingress traffic, and out specifies egress traffic. By default, the direction is both.

WORD<1-32>

Specifies the IPsec policy name.

Default

None

Command Mode

VLAN Interface Configuration

ipv6 mld last-listener-query-interval (for a VLAN)

Configure the last listener query interval for the MLD

Syntax

- **default ipv6 mld last-member-query-interval**
- **ipv6 mld last-listener-query-interval <0-60>**
- **no ipv6 mld last-member-query-interval**

Command Parameters

<0-60>

Indicates the last listener query interval in seconds.

Default

The default is 1.

Command Mode

VLAN Interface Configuration

ipv6 mld query-interval (for a VLAN)

Configure the query interval for the MLD interface

Syntax

- **default ipv6 mld query-interval**
- **ipv6 mld query-interval <1-65535>**

- **no ipv6 mld query-interval**

Command Parameters

<1-65535>

Indicates the frequency at which MLD host query packets transmit on this interface.

Default

The default is 125.

Command Mode

VLAN Interface Configuration

ipv6 mld query-max-response (for a VLAN)

Configure the query maximum response time for mld interface

Syntax

- **default ipv6 mld query-max-response**
- **ipv6 mld query-max-response <0-60>**
- **no ipv6 mld query-max-response**

Command Parameters

<0–60>

Indicates the query maximum response interval time in seconds.

Default

The default is 10.

Command Mode

VLAN Interface Configuration

ipv6 mld robust-value (for a VLAN)

Configure the MLD robustness

Syntax

- **default ipv6 mld robust-value**

- **ipv6 mld robust-value <2-255>**
- **no ipv6 mld robust-value**

Command Parameters

<2-255>

Specifies a numerical value for MLD snooping robustness.

Default

The default is 2.

Command Mode

VLAN Interface Configuration

ipv6 mld snooping

Enable MLD snooping

Syntax

- **default ipv6 mld snooping**
- **ipv6 mld snooping**
- **no ipv6 mld snooping**

Default

None

Command Mode

VLAN Interface Configuration

ipv6 mld ssm-snoop

Enable MLD ssm-snooping

Syntax

- **default ipv6 mld ssm-snoop**
- **ipv6 mld ssm-snoop**
- **no ipv6 mld ssm-snoop**

Default

None

Command Mode

VLAN Interface Configuration

ipv6 mld version (for a VLAN)

Configure MLD version

Syntax

- **default ipv6 mld version**
- **ipv6 mld version <1-2>**
- **no ipv6 mld version**

Command Parameters

<1-2>

Indicates the version of MLD that runs on this interface.

Default

The default is 1.

Command Mode

VLAN Interface Configuration

ipv6 nd dad-ns (for a VLAN)

Configure the number of neighbor solicitation messages from duplicate address detection.

Syntax

- **default ipv6 nd dad-ns**
- **ipv6 nd dad-ns <0-600>**
- **ipv6 nd dad-ns <0-600> other-config-flag**

Command Parameters

<0-600>

Configures the number of neighbor solicitation messages from duplicate address detection. A value of 0 disables duplicate address detection on the specified interface. A value of 1 configures a single transmission without follow-up transmissions.

Default

The default is 1.

Command Mode

VLAN Interface Configuration

ipv6 nd dns search-list (for a VLAN)

Configure an IPv6 DNS Search List (DNSSL) entry for a VLAN.

Syntax

- **default ipv6 nd dns search-list suppress**
- **ipv6 nd dns search-list [suppress] [WORD<0-111> [lifetime <12-4294967294> | <infinity>] [sequence <1-8>]]**
- **no ipv6 nd dns search-list [suppress] [WORD<0-111>]**

Command Parameters

lifetime *<12-4294967294> | infinity*

Specifies the time in which the DNS Search-List (DNSSL) IP addresses can be used for name resolution.

The default value is 1800.

sequence *<1-8>*

Specifies the order of priority in which the DNSSL entries are listed in Router Advertisement options.

Priority 1, listed first in the Router Advertisement option list is the highest priority while priority 8 is listed last and is the lowest priority.

The default is 8.

suppress

Suppresses DNSSL information in the Router Advertisement message.

WORD *<0-111>*

Specifies the IPv6 DNS domain name.

Default

The default is no DNSSL defined.

Command Mode

VLAN Interface Configuration

ipv6 nd dns server (for a VLAN)

Configure an IPv6 Recursive DNS Server (RDNSS) entry for a VLAN.

Syntax

- **default ipv6 nd dns server suppress**
- **ipv6 nd dns server [suppress] [WORD<0-255> [lifetime <12-4294967294> | infinity] [sequence <1-8>]]**
- **no ipv6 nd dns server [suppress] [WORD<0-255>]**

Command Parameters

lifetime *<12-4294967294> | infinity*

Specifies the time in which the Recursive DNS Server (RDNSS) IP addresses can be used for name resolution.

The default value is 1800.

sequence *<1-8>*

Specifies the order of priority in which the RDNSS entries are listed in Router Advertisement options.

Priority 1, listed first in the Router Advertisement option list is the highest priority while priority 8 is listed last and is the lowest priority.

The default is 8.

suppress

Suppresses RDNSS information in the Router Advertisement message.

WORD *<0-255>*

Specifies the IPv6 Server address.

Default

The default is no RDNSS defined.

Command Mode

VLAN Interface Configuration

ipv6 nd hop-limit (for a VLAN)

Configure the hop limit sent in router advertisements.

Syntax

- **default ipv6 nd hop-limit**
- **ipv6 nd hop-limit <0-255>**
- **no ipv6 nd hop-limit**

Command Parameters

hoplimit <0-255>

Specifies the current hop limit field sent in router advertisements from this interface. The value must be the current diameter of the Internet. A value of zero indicates that the advertisement does not specify a hop-limit value.

Default

The default is 64.

Command Mode

VLAN Interface Configuration

ipv6 nd managed-config-flag (for a VLAN)

Enable M-bit (managed address configuration) on the router.

Syntax

- **default ipv6 nd managed-config-flag**
- **ipv6 nd managed-config-flag**
- **no ipv6 nd managed-config-flag**

Default

The default is disabled.

Command Mode

VLAN Interface Configuration

ipv6 nd other-config-flag (for a VLAN)

Enable the O-bit (other stateful configuration) in the router advertisement. Other stateful configuration autoConfigure received information without addresses.

Syntax

- **default ipv6 nd other-config-flag**
- **ipv6 nd other-config-flag**
- **no ipv6 nd other-config-flag**

Default

The default is disabled.

Command Mode

VLAN Interface Configuration

ipv6 nd prefix (for a VLAN)

Configure neighbor discovery prefixes. IPv6 nodes on the same link use ND to discover link-layer addresses and to obtain and advertise various network parameters and reachability information. ND combines the services provided by ARP and router discovery for IPv4. IPv6 router advertisement includes discovery prefixes.

Syntax

- **default ipv6 nd prefix WORD<0-255> [no-advertise] [preferred-life] [valid-life]**
- **ipv6 nd prefix WORD<0-255> infinite**
- **ipv6 nd prefix WORD<0-255> no-advertise**
- **ipv6 nd prefix WORD<0-255> preferred-life <0-4294967295>**
- **ipv6 nd prefix WORD<0-255> valid-life <0-4294967295>**
- **no ipv6 nd prefix WORD<0-255> [no-advertise]**

Command Parameters

infinite

Configures the prefix as infinite.

no-advertise

Removes the prefix from the neighbor advertisement. The default for noadvertise is disabled.

preferred-life <0-4294967295>

Configures the preferred life, in seconds. The valid range is 0-4294967295. The default preferred-life is 604800.

valid-life <0-4294967295>

Configures the valid life, in seconds. The valid range is 0-4294967295. The default valid-life is 2592000.

WORD <0-255>

Specifies the IPv6 address prefix.

Default

None

Command Mode

VLAN Interface Configuration

ipv6 nd ra-lifetime (for a VLAN)

Configure the router lifetime included in router advertisement. Other devices use this information to determine if the router can be reached.

Syntax

- **default ipv6 nd ra-lifetime**
- **ipv6 nd ra-lifetime <0-9000>**

Command Parameters

<0-9000>

Configures the router lifetime included in router advertisement. The range is 0 or <4-9000>.

Default

The default is 1800.

Command Mode

VLAN Interface Configuration

ipv6 nd rtr-advert-max-interval (for a VLAN)

Configure the maximum time allowed between sending unsolicited multicast router advertisements.

Syntax

- **default ipv6 nd rtr-advert-max-interval**
- **ipv6 nd rtr-advert-max-interval <4-1800>**

Command Parameters

<4-1800>

Specifies the maximum interval value.

Default

The default is 600.

Command Mode

VLAN Interface Configuration

ipv6 nd rtr-advert-min-interval (for a VLAN)

Configure the minimum time allowed between sending unsolicited multicast router advertisements from the interface.

Syntax

- **default ipv6 nd rtr-advert-min-interval**
- **ipv6 nd rtr-advert-min-interval <3-1350>**

Command Parameters

<3-1350>

Configures the minimum time, in seconds.

Default

The default is 200.

Command Mode

VLAN Interface Configuration

ipv6 nd send-ra (for a VLAN)

Enable or disables periodic router advertisement messages.

Syntax

- **default ipv6 nd send-ra**
- **ipv6 nd send-ra**
- **no ipv6 nd send-ra**

Default

The default is enabled.

Command Mode

VLAN Interface Configuration

ipv6 ospf (for a VLAN)

Configure OSPFv3 on an interface.

Syntax

- **default ipv6 ospf**
- **default ipv6 ospf cost**
- **default ipv6 ospf dead-interval**
- **default ipv6 ospf enable**
- **default ipv6 ospf hello-interval**
- **default ipv6 ospf nbma-nbr WORD<0-43>**
- **default ipv6 ospf poll-interval**
- **default ipv6 ospf priority**
- **default ipv6 ospf retransmit-interval**
- **default ipv6 ospf transit-delay**
- **ipv6 ospf cost <0-65535>**
- **ipv6 ospf dead-interval <1-65535>**
- **ipv6 ospf enable**
- **ipv6 ospf hello-interval <1-65535>**
- **ipv6 ospf nbma-nbr WORD<0-43> <0-255>**
- **ipv6 ospf nbma-nbr WORD<0-43> priority <0-255>**
- **ipv6 ospf poll-interval <0-65535>**
- **ipv6 ospf priority <0-255>**
- **ipv6 ospf retransmit-interval <1-1800>**
- **ipv6 ospf transit-delay <1-1800>**
- **no ipv6 ospf**

- **no ipv6 ospf enable**
- **no ipv6 ospf nbma-nbr WORD<0-43>**

Command Parameters

cost <0-65535>

Configures the OSPF metric for the interface. The switch advertises the metric in router link advertisements. The default is 1.

dead-interval <1-65535>

Specifies the dead interval, as the number of seconds to wait before determining the OSPF router is down. The default is 40.

enable

Enables the OSPF on the IPv6 interface.

hello-interval <1-65535>

Specifies the hello interval, in seconds, for hello packets sent between switches for a virtual interface in an OSPF area. The default is 10.

nbma-nbr WORD<0-43>

Configures an NBMA neighbor. WORD<0-43> specifies the IPv6 address. Use priority <0-255> to change an existing priority value for an NBMA neighbor. Use <0-255> to assign the priority value when you create the neighbor.

network <eth | nbma | p2mp | p2p | passive>

Configures the type of interface as one of the following: eth: broadcast, nbma: NBMA, p2mp: point-to-multipoint, p2p:point-to-point, or passive: passive interface.

poll-interval <0-65535>

Configures the polling interval for the OSPF interface in seconds. The default is 120.

priority <0-255>

Configures the OSPF priority for the interface during the election process for the designated router. The interface with the highest priority number is the designated router. The interface with the second-highest priority becomes the backup designated router. If the priority is 0, the interface cannot become either the designated router or a backup. The priority is used only during election of the designated router and backup designated router. The default is 1.

retransmit-interval <1-1800>

Specifies the retransmit interval, in seconds, for link-state advertisements. The default is 5.

transit-delay <1-1800>

Specifies the transit-delay interval, in seconds, required to transmit a link-state update packet over the virtual interface. The default is 1.

Default

None

Command Mode

VLAN Interface Configuration

ipv6 ospf area (for a VLAN)

Configure an OSPFv3 area on an interface.

Syntax

- **ipv6 ospf area {A.B.C.D}**
- **ipv6 ospf area {A.B.C.D} cost <0-65535>**
- **ipv6 ospf area {A.B.C.D} dead-interval <1-65535>**
- **ipv6 ospf area {A.B.C.D} hello-interval <1-65535>**
- **ipv6 ospf area {A.B.C.D} network eth**
- **ipv6 ospf area {A.B.C.D} network nbma**
- **ipv6 ospf area {A.B.C.D} network p2mp**
- **ipv6 ospf area {A.B.C.D} network p2p**
- **ipv6 ospf area {A.B.C.D} network passive**
- **ipv6 ospf area {A.B.C.D} priority <0-255>**
- **ipv6 ospf area {A.B.C.D} retransmit-interval <1-1800>**
- **ipv6 ospf area {A.B.C.D} transit-delay <1-1800>**

Command Parameters

area {A.B.C.D}

Creates an IPv6 OSPF area.

cost <0-65535>

Configures the OSPF metric for the interface. The switch advertises the metric in router link advertisements. The default is 1.

dead-interval <1-65535>

Specifies the dead interval, as the number of seconds to wait before determining the OSPF router is down. The default is 40.

hello-interval <1-65535>

Specifies the hello interval, in seconds, for hello packets sent between switches for a virtual interface in an OSPF area. The default is 10.

network <eth|nbma|p2mp|p2p|passive>

Configures the type of interface as one of the following: eth: broadcast, nbma: NBMA, p2mp: point-to-multipoint, p2p:pointto-point, or passive: passive interface.

priority <0-255>

Configures the OSPF priority for the interface during the election process for the designated router. The interface with the highest priority number is the designated router. The interface with the second-highest priority becomes the backup designated router. If the priority is 0, the interface cannot become either the designated router or a backup. The priority is used only during election of the designated router and backup designated router. The default is 1.

retransmit-interval <1-1800>

Specifies the retransmit interval, in seconds, for link-state advertisements. The default is 5.

transit-delay <1-1800>

Specifies the transit-delay interval, in seconds, required to transmit a link-state update packet over the virtual interface. The default is 1.

Default

None

Command Mode

VLAN Interface Configuration

ipv6 ospf bfd

Enable Bidirectional Forwarding Detection (BFD) for an OSPF VLAN IPv6 interface.

Syntax

- **ipv6 ospf bfd**
- **ipv6 ospf bfd disable**

Default

The default is disable.

Command Mode

VLAN Interface Configuration

Usage Guidelines

This command is available for demonstration purposes only. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

ipv6 pim enable (for a VLAN)

Enable PIM globally on the switch

Syntax

- **default ipv6 pim enable**
- **ipv6 pim enable**
- **no ipv6 pim enable**

Default

The default is disabled

Command Mode

VLAN Interface Configuration

ipv6 pim hello-interval (for a VLAN)

Configure the time between hello messages.

Syntax

- **default ipv6 pim hello-interval**
- **ipv6 pim hello-interval <0-18724>**

Command Parameters

<0–18724>

Specifies the duration in seconds before the PIM router sends out the next hello message to neighboring switches.

Default

The default is 30 seconds

Command Mode

VLAN Interface Configuration

ipv6 pim join-prune-interval (for a VLAN)

Configure the interval for join and prune messages.

Syntax

- **default ipv6 pim join-prune-interval**
- **ipv6 pim join-prune-interval <1-18724>**

Command Parameters

<1-18724>

Specifies the duration in seconds before the PIM router sends out the next join or prune message to its upstream neighbors.

Default

The default is disabled

Command Mode

VLAN Interface Configuration

ipv6 rip cost (for a VLAN)

Configure the RIPng cost for this port (link).

Syntax

- **default ipv6 rip cost**
- **ipv6 rip cost <1-15>**

Command Parameters

<1-15>

Specifies the cost value.

Default

None

Command Mode

VLAN Interface Configuration

ipv6 rip poison enable (for a VLAN)

Enable poison reverse.

Syntax

- **default ipv6 rip poison enable**
- **ipv6 rip poison enable**
- **no ipv6 rip poison enable**

Default

The default is disabled.

Command Mode

VLAN Interface Configuration

ipv6 vrrp (for a VLAN)

Configure Virtual Router Redundancy Protocol (VRRP) to provide fast failover of a default router for IPv6 LAN hosts.

Syntax

- **default ipv6 vrrp <1-255> [enable]**
- **ipv6 vrrp <1-255> enable**
- **no ipv6 vrrp <1-255> [enable]**

Command Parameters

<1-255>

Specifies a number that uniquely identifies a virtual router on an interface. The virtual router acts as the default router for one or more assigned addresses.

enable

Enables IPv6 Virtual Router Redundancy Protocol (VRRP).

Default

The default is disabled.

Command Mode

VLAN Interface Configuration

ipv6 vrrp <1-255> accept-mode

Configures the master or backup master router to accept packets destined to the IPv6 address associated with the virtual router

Syntax

- **default ipv6 vrrp <1-255> accept-mode enable**
- **ipv6 vrrp <1-255> accept-mode enable**
- **no ipv6 vrrp <1-255> accept-mode enable**

Command Parameters

<1-255>

Specifies a number that uniquely identifies a virtual router on an interface. The virtual router acts as the default router for one or more assigned addresses.

Default

The default is disabled.

Command Mode

VLAN Interface Configuration

ipv6 vrrp <1-255> action

Configures the action of the routing interface.

Syntax

- **default ipv6 vrrp <1-255> action**
- **ipv6 vrrp <1-255> action {none|preempt}**

Command Parameters

{none|preempt}

Specifies the action of the routing interface:

- none—do not override the holddown timer
- preempt—override the holddown timer

Default

The default is none.

Command Mode

VLAN Interface Configuration

Usage Guidelines

This command applies only if the holddown timer is active.

ipv6 vrrp <1-255> adver-int

Configures the time interval between sending Virtual Router Redundancy Protocol (VRRP) advertisement messages.

Syntax

- **default ipv6 vrrp <1-255> adver-int**
- **ipv6 vrrp <1-255> adver-int <1-40>**

Command Parameters

<1-255>

Specifies a unique integer value that represents the virtual router ID. The virtual router acts as the default router for one or more assigned addresses.

<1..40>

Specifies the time interval (in seconds) between sending Virtual Router Redundancy Protocol (VRRP) advertisement messages. This value must be the same on all the participating routers.

Default

The default is 1 second.

Command Mode

VLAN Interface Configuration

ipv6 vrrp <1-255> backup-master enable

Enables the Virtual Router Redundancy Protocol (VRRP) backup master.

Syntax

- **default ipv6 vrrp <1-255> backup-master enable**
- **ipv6 vrrp <1-255> backup-master enable**
- **no ipv6 vrrp <1-255> backup-master enable**

Command Parameters

<1-255>

Specifies a unique integer value that represents the virtual router ID. The virtual router acts as the default router for one or more assigned addresses.

Default

The default is disabled.

Command Mode

VLAN Interface Configuration

ipv6 vrrp <1-255> critical-ipv6-addr

Configures the critical IP address for VRRP.

Syntax

- **default ipv6 vrrp <1-255> critical-ipv6-addr**
- **ipv6 vrrp <1-255> critical-ipv6-addr WORD<0-46>**

Command Parameters

<1-255>

Specifies a unique integer value that represents the virtual router ID. The virtual router acts as the default router for one or more assigned addresses.

WORD<0-46>

Specifies the critical IPv6 address for VRRP.

Default

None

Command Mode

VLAN Interface Configuration

ipv6 vrrp <1-255> critical-ipv6 enable

Enables the critical v6 address for VRRP.

Syntax

- **default ipv6 vrrp <1-255> critical-ipv6 enable**
- **ipv6 vrrp <1-255> critical-ipv6 enable**

Command Parameters

<1-255>

Specifies a unique integer value that represents the virtual router ID. The virtual router acts as the default router for one or more assigned addresses.

Default

None

Command Mode

VLAN Interface Configuration

Usage Guidelines

Do not enable Critical IPv6 if Backup Master is enabled.

ip vrrp <1-255> fast-adv enable

Enables the Fast Advertisement Interval.

Syntax

- **default ip vrrp <1-255> fast-adv enable**
- **ip vrrp <1-255> fast-adv enable**
- **no ip vrrp <1-255> fast-adv enable**

Command Parameters

<1-255>

Specifies a unique integer value that represents the virtual router ID. The virtual router acts as the default router for one or more assigned addresses.

Default

The default is disabled.

Command Mode

VLAN Interface Configuration

ipv6 vrrp <1-255> fast-adv-int

Configures the time interval between sending VRRP advertisement messages.

Syntax

- **default ipv6 vrrp <1-255> fast-adv-int**
- **ipv6 vrrp <1-255> fast-adv-int <200-1000>**

Command Parameters

<1-255>

Specifies a unique integer value that represents the virtual router ID. The virtual router acts as the default router for one or more assigned addresses.

<200-1000>

Specifies the time interval in milliseconds between sending VRRP advertisement messages.

The range must be the same on all participating routers. You must enter values in multiples of 200 milliseconds.

Default

The default is 200.

Command Mode

VLAN Interface Configuration

ipv6 vrrp <1-255> holddown-timer

Configures the time interval (in seconds) to wait before preempting the current VRRP primary router.

Syntax

- **default ipv6 vrrp <1-255> holddown-timer**
- **ipv6 vrrp <1-255> holddown-timer <0-21600>**

Command Parameters

<1-255>

Specifies a unique integer value that represents the virtual router ID. The virtual router acts as the default router for one or more assigned addresses.

<0-21600>

Specifies the time interval (in seconds) to wait before preempting the current VRRP primary router.

Default

The default is 0.

Command Mode

VLAN Interface Configuration

ipv6 vrrp <1-255> preempt-mode enable

Enables preempt mode for vrrp (v3). If a new router is added to the network with its priority higher than the existing routers,then the new router becomes the master.

Syntax

- **default ipv6 vrrp <1-255> preempt-mode**
- **ipv6 vrrp <1-255> preempt-mode enable**
- **no ipv6 vrrp <1-255> preempt-mode enable**

Command Parameters

<1-255>

Specifies a unique integer value that represents the virtual router ID. The virtual router acts as the default router for one or more assigned addresses.

Default

The default is enabled.

Command Mode

VLAN Interface Configuration

ipv6 vrrp <1-255> priority

Configures the port Virtual Router Redundancy Protocol (VRRP) priority.

Syntax

- **default ipv6 vrrp <1-255> priority**
- **ipv6 vrrp <1-255> priority <1..254>**

Command Parameters

<1-255>

Specifies a unique integer value that represents the virtual router ID. The virtual router acts as the default router for one or more assigned addresses.

<1..254>

Specifies the priority value used by this VRRP router. The value 255 is reserved for the router that owns the IP addresses associated with the virtual router.

Default

The default is 100.

Command Mode

VLAN Interface Configuration

ipv6 vrrp address (for a VLAN)

Specify a link-local address to associate with the virtual router. Optionally, you can also assign global unicast IPv6 addresses to associate with the virtual router. Network prefixes for the virtual router are derived from the global IPv6 addresses assigned to the virtual router.

Syntax

- **default ipv6 vrrp address <1-255>**
- **ipv6 vrrp address <1-255> link-local WORD<0-127>**
- **ipv6 vrrp address <1-255> global WORD<0-225>**
- **no ipv6 vrrp address <1-255>**
- **no ipv6 vrrp address <1-255> global WORD<0-225>**

Command Parameters

<1-255>

Specifies the virtual router ID. The virtual router acts as the default router for one or more associated addresses.

global WORD<0-225>

Specifies a global IPv6 address and mask to associate with the virtual router. The range is 0 to 255.

link-local WORD<0-127>

Specifies a link-local IPv6 address to associate with the virtual router. The range is 0 to 127.

Default

None

Command Mode

VLAN Interface Configuration

mgmt enable

Creates a Management VLAN in routing mode. This Management VLAN inherits the VRF, MAC offset, and IPv4 and IPv6 address configuration from the VLAN interface.

Syntax

- **mgmt enable**
- **no mgmt enable**

Default

None.

Command Mode

VLAN Interface Configuration

migrate-to-mgmt (for a VLAN)

You can use this command to move an existing Segmented Management Instance VLAN interface to a different VLAN. Save the configuration. During a reboot the migration configuration moves the selected interface to the management stack for use with management applications.

Syntax

- **migrate-to-mgmt**
- **no migrate-to-mgmt**

Default

None

Command Mode

VLAN Interface Configuration

Usage Guidelines

You cannot use this command to migrate to a Management VLAN in routing mode.

mvpn-isid <0-15999999>

Associates a Layer 3 VSN VLAN with a dynamically created VRF or the Global Routing Table (GRT). If you configure **mvpn-isid** on a VLAN, you can enable **ip spb-multicast enable** on that VLAN without configuring an IP address.

Note

If you enter the same I-SID as a VRF already configured on the switch, then the VLAN is associated with the existing VRF.

An IP address and an **mvpn-isid** cannot be configured on a VLAN at the same time. If you reach the maximum number of dynamic VRFs supported on the platform, an error message is displayed.

Syntax

- **default mvpn-isid**
- **mvpn-isid <0-15999999>[0-511]**
- **no mvpn-isid**

Command Parameters

0-511

Allows you to add an offset parameter to the MVPN I-SID. This is an optional value and the range is 0-511.

Default

By default, an MVPN I-SID is not configured on a VLAN.

Note

When **default mvpn-isid** is used, the dynamic VRF is removed.

Command Mode

VLAN Interface Configuration

nlb-mode

Configure the NLB support on an IP interface to enable or disable the Network Load Balancer (NLB) support.

Syntax

- **default nlb-mode**
- **nlb-mode multicast**
- **nlb-mode unicast**
- **no nlb-mode**

Command Parameters

multicast

Configures the mode as multicast.

unicast

Configures the mode as unicast.

Default

By default, NLB is disabled.

Command Mode

VLAN Interface Configuration

slpp (on a VLAN)

Enable the Simple Loop Prevention Protocol (SLPP) globally and for a VLAN to detect a loop and automatically stop it. The VLAN configuration controls the boundary of SLPP-PDU transmission.

Syntax

- **default slpp**
- **default slpp enable**
- **default slpp tx-interval**
- **no slpp**
- **no slpp enable**
- **no slpp vid <1-4059>**
- **slpp enable**
- **slpp tx-interval <500-5000>**
- **slpp vid <1-4059>**

Command Parameters

enable

Enables or disables the SLPP operation. You must enable the SLPP operation to enable the SLPP packet transmit and receive process. If you disable the SLPP operation, the system sends no SLPP packets and discards received SLPP packets. The default is disabled.

tx-interval <500-5000>

Configures the SLPP packet transmit interval, expressed in milliseconds, in a range from 500-5000. The default is 500.

vid <1-4059>

Specifies the VLAN ID in the range of 1 to 4059. VLAN IDs 1 to 4059 are configurable. The system reserves VLAN IDs 4060 to 4094 for internal use. VLAN ID 1 is the default VLAN. You cannot create or delete VLAN ID 1.

Default

None

Command Mode

VLAN Interface Configuration

vrf (for a VLAN)

Associate a VLAN to a VRF so that the VLAN becomes a member of the VRF instance.

Syntax

- **no vrf**
- **vrf WORD<1-16> [trusted | unrestricted | untrusted]**

Command Parameters

trusted

Associates the VLAN with the trusted access segment of a Segmented VRF. If you do not use this parameter, the VLAN is associated with the trusted segment by default.

unrestricted

Associates the VLAN with the unrestricted access segment of a Segmented VRF. If you do not use this parameter, the VLAN is associated with the trusted segment by default.

untrusted

Associates the VLAN with the untrusted access segment of a Segmented VRF. If you do not use this parameter, the VLAN is associated with the trusted segment by default.

WORD<1-16>

Specifies the name of a traditional VRF. You cannot use untrusted or unrestricted segment names in command syntax.

Default

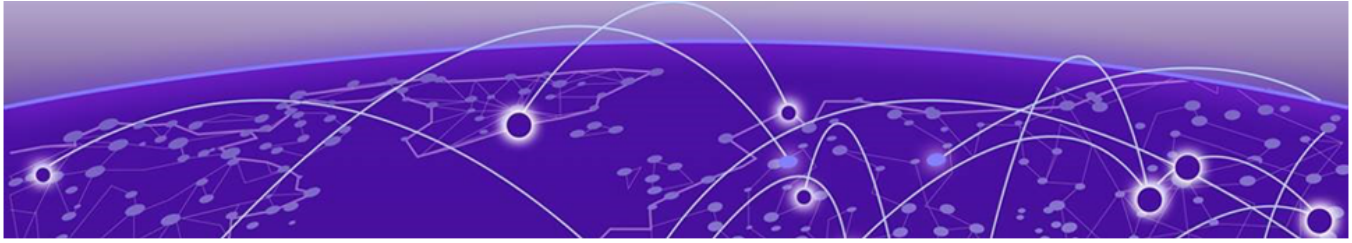
None

Command Mode

VLAN Interface Configuration

Usage Guidelines

The *trusted*, *unrestricted*, and *untrusted* parameters do not apply to 7830 Series or to switch models that support a single active VRF.



VRF Router Configuration

The following topics document commands available in VRF Router Configuration mode of the command line interface (CLI).

dvr inject-default-route-disable

Disables injection of default routes for a specific VRF instance, on the DvR Controller.

Syntax

- **default dvr inject-default-route-disable**
- **dvr inject-default-route-disable**
- **no dvr inject-default-route-disable**

Default

The default is enable

Command Mode

VRF Router Configuration

dvr redistribute direct (for a VRF)

Enables route redistribution of direct routes on a VRF instance. The route type is internal.

Syntax

- **dvr redistribute direct enable**
- **dvr redistribute direct metric <0-65535>**
- **dvr redistribute direct route-map**

Command Parameters

enable

Enables route redistribution of direct routes on a VRF instance. The route type is internal.

metric <0-65535>

Configures the route redistribution metric for direct routes on a VRF instance.

route-map

Configures the route policy for route redistribution of direct routes, on a VRF instance.

Default

The default is disable

Command Mode

VRF Router Configuration

dvr redistribute static (for a VRF)

Enables route redistribution of direct routes on a VRF instance. The route type is external.

Syntax

- **dvr redistribute static enable**
- **dvr redistribute static metric <0-65535>**
- **dvr redistribute static route-map**

Command Parameters

enable

Enables route redistribution of static routes on a VRF instance. The route type is external.

metric <0-65535>

Configures the route redistribution metric for static routes on a VRF instance.

route-map

Configures the route policy for route redistribution of static routes on a VRF instance.

Default

The default is disable

Command Mode

VRF Router Configuration

i-sid (for a VRF)

Assign an service instance identifier (I-SID) to the VRF.

Syntax

- **default i-sid**
- **i-sid <0-16777215> [trusted | unrestricted | untrusted]**
- **i-sid name <0-16777215> WORD<0-64>**
- **no i-sid [trusted | unrestricted | untrusted]**
- **no i-sid name <0-16777215>**

Command Parameters

<0-16777215>

Specifies the service instance identifier (I-SID).

name WORD<0-64>

Specifies the name service instance identifier (I-SID).

[trusted | unrestricted | untrusted]

Assigns an I-SID to advertise routes from the specified segment of a Segmented VRF. If you do not assign an I-SID to the untrusted and unrestricted segments, the switch automatically computes a value based on the trusted I-SID. You must enable Segmented VRF on the VRF before you can use these parameters.

Ensure the I-SIDs you configure for Segmented VRF, or that the switch automatically derives, do not conflict with I-SIDs used for other purposes in the network.

Default

The default is disabled.

Command Mode

VRF Router Configuration

Usage Guidelines

The *[trusted | unrestricted | untrusted]* parameters do not apply to 7830 Series or to switch models that support a single active VRF.

ip alternative-route (on a VRF)

Enable the alternative route feature for a VRF context.

Syntax

- **default ip alternative-route**
- **ip alternative-route**
- **no ip alternative-route**

Command Parameters

alternative-route

Enables or disables the Alternative Route feature. The default value is enabled. If the alternative-route parameter is disabled, all existing alternative routes are removed. When the parameter is enabled, all alternative routes are re-added.

Default

The default is enabled.

Command Mode

VRF Router Configuration

ip arp (for a VRF)

Configure ARP static entries to modify the ARP parameters on the device. The only way to change a static ARP is to delete the static ARP entry and create a new entry with new information.

Syntax

- **default ip arp {A.B.C.D}**
- **default ip arp timeout**
- **ip arp {A.B.C.D} 0x00:0x00:0x00:0x00:0x00:0x00 {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **ip arp {A.B.C.D} 0x00:0x00:0x00:0x00:0x00:0x00 {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]} vid <1-4059>**
- **ip arp timeout <1-32767>**
- **no ip arp {A.B.C.D}**

Command Parameters

{A.B.C.D}

Specifies the IP address.

{slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

If the platform supports channelization and the port is channelized, you must also specify the sub-port in the format slot/port/sub-port.

{slot[-slot][,...]}

Specifies the port that receives the flooding.

0x00:0x00:0x00:0x00:0x00:0x00

Specifies the MAC address in hexadecimal format. The MAC address parameter does not accept MAC addresses beginning with 01:00:5e (01:00:5e:00:00:00 to 01:00:5e:ff:ff:ff inclusive).

timeout <1-32767>

Configures the timeout value.

vid <1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. If you enable VRF scaling and SPBM mode, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

Default

None

Command Mode

VRF Router Configuration

ip as-list (for a VRF)

Use an asynchronous (AS) path list to restrict the routing information a router learns or advertises to and from a neighbor. The AS path list acts as a filter that Match AS paths.

Syntax

- **no ip as-list <1-1024> as-path WORD<0-1536>**
- **no ip as-list <1-1024> memberid <0-65535>**

Command Parameters

{ permit | deny }

Permits or denies access for matching conditions.

<1-1024>

Creates the specified AS-path list entry.

<prefix/len>

Specifies the IPv4 address and an integer value in the range of 1 to 256.

advertisemap WORD<0-1536>

Specifies the route map name for route advertisements.

as-path WORD<0-1536>

Specifies an integer value between 0 and 1536 placed within quotation marks " ."

as-set

Enables autonomous system (AS) information.

Attributemap WORD<0-1536>

Specifies the route map name.

memberid <0-65535>

Adds a regular expression entry to the specified AS-path list.

summaryonly

Enables the summarization of routes not included in routing updates. This parameter creates the aggregate route and suppresses advertisements of more specific routes to all neighbors. The default value is disable.

suppress-map WORD<0-1536>

Specifies the route map name for the suppressed route list.

Default

None

Command Mode

VRF Router Configuration

ip bgp

Enables BGP on the VRF.

Syntax

- **default ip bgp**
- **ip bgp**
- **no ip bgp**

Default

The default value is disabled.

Command Mode

VRF Router Configuration

ip bgp aggregate-address

Add or delete an aggregate address in a BGP routing table.

Syntax

- **default ip bgp aggregate-address WORD <1-256>**
- **default ip bgp aggregate-address WORD <1-256> advertise-map**
- **default ip bgp aggregate-address WORD <1-256> as-set**
- **default ip bgp aggregate-address WORD <1-256> attribute-map**
- **default ip bgp aggregate-address WORD <1-256> summary-only**
- **default ip bgp aggregate-address WORD <1-256> suppress-map**
- **ip bgp aggregate-address WORD <1-256>**
- **ip bgp aggregate-address WORD <1-256> advertise-map WORD<0-1536>**
- **ip bgp aggregate-address WORD <1-256> as-set**
- **ip bgp aggregate-address WORD <1-256> attribute-map WORD<0-1536>**
- **ip bgp aggregate-address WORD <1-256> summary-only**
- **ip bgp aggregate-address WORD <1-256> suppress-map WORD<0-1536>**
- **no ip bgp aggregate-address WORD <1-256>**
- **no ip bgp aggregate-address WORD <1-256> advertise-map**
- **no ip bgp aggregate-address WORD <1-256> as-set**
- **no ip bgp aggregate-address WORD <1-256> attribute-map**
- **no ip bgp aggregate-address WORD <1-256> summary-only**
- **no ip bgp aggregate-address WORD <1-256> suppress-map**

Command Parameters

advertise-map WORD<0-1536>

Specifies the route map name (any string length between 0 and 64 characters) for route advertisements.

as-set

Enables autonomous system (AS) information.

attribute-map WORD <0-1536>

Specifies the route map name (string length between 0 and 64 characters).

summary-only

Enables the summarization of routes not included in routing updates. This parameter creates the aggregate route and suppresses advertisements of more specific routes to all neighbors. The default value is disable.

suppress-map WORD<0-1536>

Specifies the route map name (string length between 0 and 64 characters) for the suppressed route list.

WORD <1-256>

Specifies the IPv4 or the IPv6 address and an integer value in the range of 1 to 256.

Default

The default is disabled.

Command Mode

VRF Router Configuration

ip bgp aggregation

Enable or disable automatic route aggregation on the port. When enabled, the router automatically aggregates routes to their natural mask when they are advertised on an interface in a different class network.

Syntax

- **default ip bgp aggregation**
- **default ip bgp aggregation enable**
- **ip bgp aggregation**
- **ip bgp aggregation enable**
- **no ip bgp aggregation**
- **no ip bgp aggregation enable**

Default

The default is disabled.

Command Mode

VRF Router Configuration

ip bgp always-compare-med

When enabled, compares multiexit discriminator (MED) attributes from neighbors in different autonomous systems.

Syntax

- **default ip bgp always-compare-med**
- **ip bgp always-compare-med**
- **no ip bgp always-compare-med**

Default

The default is enabled.

Command Mode

VRF Router Configuration

ip bgp auto-peer-restart enable

Enable the process that automatically restarts a connection to a BGP neighbor.

Syntax

- **default ip bgp auto-peer-restart**
- **default ip bgp auto-peer-restart enable**
- **ip bgp auto-peer-restart enable**
- **no ip bgp auto-peer-restart**
- **no ip bgp auto-peer-restart enable**

Default

The default is enabled.

Command Mode

VRF Router Configuration

ip bgp auto-summary

Summarize the networks based on class limits after BGP is enabled. (For example, Class A, B, C networks).

Syntax

- **default ip bgp auto-summary**
- **ip bgp auto-summary**
- **no ip bgp auto-summary**

Default

The default is enabled.

Command Mode

VRF Router Configuration

ip bgp debug-screen

Display debug messages on the console, or saves them in a log file.

Syntax

- **default ip bgp debug-screen**
- **ip bgp debug-screen { off | on }**
- **no ip bgp debug-screen**

Default

The default is off.

Command Mode

VRF Router Configuration

ip bgp default local-preference

Specifies the default value of the local preference attribute.

Syntax

- **default ip bgp default local-preference**
- **ip bgp default local-preference <0-2147483647>**
- **no ip bgp default local-preference**

Command Parameters

<0-2147483647>

Specifies the preference value.

Default

The default is 0.

Command Mode

VRF Router Configuration

ip bgp default-information

Enable the advertisement of a default route to peers, if it is present in the routing table.

Syntax

- **default ip bgp default-information originate**
- **default ip bgp default-information ipv6-originate**
- **ip bgp default-information originate**
- **ip bgp default-information ipv6-originate**
- **no ip bgp default-information originate**
- **no ip bgp default-information ipv6-originate**

Command Parameters

originate

Enables the origination default route.

ipv6-originate

Enables the origination of an IPv6 default route.

Default

The default is disabled.

Command Mode

VRF Router Configuration

ip bgp default-metric

Configure a value that is sent to a BGP neighbor to determine the cost of a route a neighbor is using.

Syntax

- **default ip bgp default-metric**
- **ip bgp default-metric <-1-2147483647>**
- **no ip bgp default-metric**

Command Parameters

<-1-2147483647>

Specifies the range of the default metric. A default metric value helps solve the problems associated with redistributing routes that have incompatible metrics.

Default

The default value is -1.

Command Mode

VRF Router Configuration

ip bgp deterministic-med enable

Enables deterministic MED. Deterministic MED, when enabled, means that the first AS of the multiple paths must be the same.

Syntax

- **default ip bgp deterministic-med**
- **default ip bgp deterministic-med enable**
- **ip bgp deterministic-med enable**
- **no ip bgp deterministic-med**
- **no ip bgp deterministic-med enable**

Default

The default is disabled.

Command Mode

VRF Router Configuration

ip bgp enable

Enabled BGP on the VRF.

Syntax

- **default ip bgp enable**
- **ip bgp enable**
- **no ip bgp enable**

Default

The default is disabled.

Command Mode

VRF Router Configuration

ip bgp flap-dampening

Enable route suppression for routes that flap on and off.

Syntax

- **default ip bgp flap-dampening**
- **default ip bgp flap-dampening enable**
- **ip bgp flap-dampening**
- **ip bgp flap-dampening enable**
- **no ip bgp flap-dampening**
- **no ip bgp flap-dampening enable**

Default

The default is enabled.

Command Mode

VRF Router Configuration

ip bgp global-debug mask

Display specific debug messages for your global BGP configuration.

Syntax

- **default ip bgp global-debug mask**
- **ip bgp global-debug mask WORD<1-100>**
- **no ip bgp global-debug mask**

Default

None

Command Mode

VRF Router Configuration

ip bgp ibgp-report-import-rt enable

Configure BGP to advertise imported routes to an interior BGP (IBGP) peer. This command enable or disables the advertisement of non-BGP imported routes to other IBGP neighbors.

Syntax

- **default ip bgp ibgp-report-import-rt enable**
- **ip bgp ibgp-report-import-rt enable**
- **no ip bgp ibgp-report-import-rt enable**

Default

The default is enabled.

Command Mode

VRF Router Configuration

ip bgp ignore-illegal-rtrid enable

Overlook an illegal router id after enabling BGP.

Syntax

- **default ip bgp ignore-illegal-rtrid**
- **default ip bgp ignore-illegal-rtrid enable**
- **ip bgp ignore-illegal-rtrid enable**
- **no ip bgp ignore-illegal-rtrid**
- **no ip bgp ignore-illegal-rtrid enable**

Default

The default is enabled.

Command Mode

VRF Router Configuration

ip bgp multiple-paths

Configures the maximum number of equal-cost-paths that are available to a BGP router by limiting the number of equal-cost-paths the routing table can store.

Syntax

- **ip bgp multiple-paths <1-8>**

Default

The default is 1.

Command Mode

VRF Router Configuration

ip bgp neighbor

Configure BGP neighbors for a VRF context.

Syntax

- **default ip bgp neighbor WORD<0-1536> [advertisement-interval] [allow-as-in] [as-override] [default-ipv6-originate] [default-originate] [ebgp-multihop] [enable] [in-route-map] [ipv6-in-route-map] [ipv6-max-prefix] [ipv6-out-route-map] [max-prefix] [MD5-authentication enable] [neighbor-debug-mask] [next-hop-self] [out-route-map] [remote-as] [remove-private-as enable] [retry-interval] [send-community] [site-of-origin] [soft-reconfiguration-in enable] [timers] [update-source] [weight]**
- **ip bgp neighbor WORD<0-1536> [advertisement-interval <5-120>] [allow-as-in <0-10>] [as-override] [default-ipv6-originate] [default-originate] [ebgp-multihop] [enable] [in-route-map WORD<0-256>] [ipv6-in-route-map] [ipv6-max-prefix] [ipv6-out-route-map] [max-prefix <0-2147483647>] [MD5-authentication enable] [neighbor-debug-mask WORD<1-100>] [next-hop-self] [out-route-map WORD<0-256>] [peer-group WORD<0-1536>] [remote-as WORD<0-11>] [remove-private-as enable] [retry-interval <1-65535>] [send-community] [site-of-origin <0-65535> <0-2147483647>] [site-of-origin {A.B.C.D} <0-65535>] [soft-reconfiguration-in enable] [timers <0-21845> <0-65535>] [unrestricted] [update-source {A.B.C.D}] [weight <0-65535>]**
- **no ip bgp neighbor WORD<0-1536> [as-override] [default-ipv6-originate] [default-originate] [ebgp-multihop] [enable] [in-route-map] [ipv6-in-route-map] [ipv6-max-prefix] [ipv6-out-route-map] [MD5-authentication enable] [neighbor-debug-mask] [next-hop-self] [out-route-map] [peer-group] [remove-private-as enable] [send-community] [site-of-origin] [soft-reconfiguration-in enable] [update-source]**

Command Parameters

advertisement-interval <5-120>

Specifies the IP Border Gateway Protocol (BGP) route advertisement interval.

allow-as-in <0-10>

Specifies the IP Border Gateway Protocol (BGP) neighbor allow-as-in.

as-override

Specifies the as-override.

default-ipv6-originate

Enables the IPv6 bgp neighbor default-originate.

default-originate

Specifies the default-originate.

ebgp-multihop

Specifies EBGP-multihop.

enable

Enables the command.

in-route-map WORD<0-256>

Specifies the in-route-map.

ipv6-in-route-map

Specifies the IPv6 in-route-map.

ipv6-max-prefix

Specifies the IPv6 max-prefix.

ipv6-out-route-map

Specifies the IPv6 out-route-map.

max-prefix <0-2147483647>

Specifies the max-prefix.

MD5-authentication enable

Enables the Message Digest 5 (MD5)-authentication.

neighbor-debug-mask WORD<1-100>

Specifies the neighbor-debug-mask.

next-hop-self

Specifies the next-hop-self.

out-route-map WORD<0-256>

Specifies the out-route-map.

peer-group WORD<0-1536>

Specifies the peer group.

remote-as WORD<0-11>

Specifies the remote-as.

remove-private-as enable

Enables the remote-private-as enable.

retry-interval <1-65535>

Specifies the retry-interval.

send-community

Specifies the send-community.

site-of-origin {A.B.C.D} <0-65535>

Specifies the site-of-origin.

timers <0-21845> <0-65535>

Specifies the timers.

unrestricted

Configures a BGP neighbor as part of the unrestricted segment of a Segmented VRF. If you do not enter this parameter, BGP neighbors that you configure in the VRF context are part of the trusted segment.

update-source WORD<1-256>

Specifies the IPv4 or IPv6 address of the update-source.

weight <0-65535>

Specifies the weight.

WORD<0-1536>

Specifies the neighbor IP address, neighbor IPv6 address, or the neighbor group name.

Default

None

Command Mode

VRF Router Configuration

Usage Guidelines

The *unrestricted* parameter does not apply to 7830 Series or to switch models that support a single active VRF.

ip bgp neighbor password

Specify the password for IP BGP.

Syntax

- **default ip bgp neighbor password <nbr_ipaddr|peer-group-name> WORD<0-1536>**
- **ip bgp neighbor password <nbr_ipaddr|peer-group-name> WORD<0-1536>**
- **no ip bgp neighbor password <nbr_ipaddr|peer-group-name> WORD<0-1536>**

Command Parameters

<nbr_ipaddr|peer-group-name>

Specifies the peer IP address or the peer group name.

password

Configures the IP BGP neighbor password.

WORD<0-1536>

Specifies a password for IP BGP.

Default

None

Command Mode

VRF Router Configuration

ip bgp network

Specify the Interior Gateway Protocol (IGP) network prefixes for Border Gateway Protocol (BGP) to advertise for redistribution.

Syntax

- **default ip bgp network WORD<1-256>**
- **ip bgp network WORD<1-256>**
- **ip bgp network WORD<1-256> metric <0-65535>**
- **no ip bgp network WORD<1-256>**

Command Parameters

WORD<1-256>

Specifies IGP network prefixes for Border Gateway Protocol (BGP) to advertise for redistribution. This command imports routes into BGP. WORD <1-256> is the IPv4 or IPv6 network address and mask.

metric <0-65535>

Corresponds to the multiexit discriminator (MED) BGP attribute for the route.

Default

None

Command Mode

VRF Router Configuration

ip bgp no-med-path-is-worst enable

Enable Border Gateway Protocol (BGP) to treat an update without a multiexit discriminator (MED) attribute as the worst path.

Syntax

- **default ip bgp no-med-path-is-worst**
- **default ip bgp no-med-path-is-worst enable**
- **ip bgp no-med-path-is-worst enable**
- **no ip bgp no-med-path-is-worst**
- **no ip bgp no-med-path-is-worst enable**

Default

The default value is enable.

Command Mode

VRF Router Configuration

ip bgp quick-start enable

Enables the quick-start flag for exponential backoff.

Syntax

- **default ip bgp quick-start**
- **default ip bgp quick-start enable**
- **ip bgp quick-start enable**
- **no ip bgp quick-start**
- **no ip bgp quick-start enable**

Default

The default value is enable.

Command Mode

VRF Router Configuration

ip bgp redistribute

Configure and enable redistribution entries to allow a protocol to announce routes of a certain source type, for example, static, RIP, or direct.

Syntax

- **default ip bgp redistribute {{direct | dvr | ipv6-direct | ipv6-isis | ipv6-static | isis | ospf | ospfv3 | rip | static} {enable | metric | metric-type |route-map WORD |vrf-src WORD <1-16>}**
- **ip bgp redistribute {{direct | dvr | ipv6-direct | ipv6-isis | ipv6-static | isis | ospf | ospfv3 | rip | static} {enable | metric <0-65535> | metric-type live-metric |route-map WORD<0-64> |vrf-src WORD <1-16>}**
- **no ip bgp redistribute {{direct | dvr | ipv6-direct | ipv6-isis | ipv6-static | isis | ospf | ospfv3 | rip | static} [enable] vrf-src WORD <1-16>**

Command Parameters

direct

Specifies the type of routes to redistribute-the protocol source.

If you use this parameter, configured secondary IP subnets are always redistributed unless you configure a filtering route-map with redistribution.

dvr

Specifies the type of routes to redistribute-the protocol source.

enable

Enables the route redistribution instance.

ipv6-direct

Specifies the type of routes to redistribute-the protocol source.

ipv6-isis

Specifies the type of routes to redistribute-the protocol source.

ipv6-static

Specifies the type of routes to redistribute-the protocol source.

isis

Specifies the type of routes to redistribute-the protocol source.

metric <0-65535>

Configures the metric to apply to redistributed routes.

metric-type live-metric

Configures default bgp redistribute direct metric-type value

ospf

Specifies the type of routes to redistribute-the protocol source.

ospfv3

Specifies the type of routes to redistribute-the protocol source.

rip

Specifies the type of routes to redistribute-the protocol source.

route-map WORD<0-64>

Configures the route map to apply to redistributed routes.

static

Specifies the type of routes to redistribute-the protocol source.

vrf-src WORD<1-16>

Specifies the source VRF instance. This parameter is not required for redistribution within the same VRF.

Default

None

Command Mode

VRF Router Configuration

ip bgp router-id {A.B.C.D}

Specify the BGP router ID in IP address format.

Syntax

- **default ip bgp router-id**
- **ip bgp router-id {A.B.C.D}**
- **no ip bgp router-id**

Command Parameters

{A.B.C.D}

Identifies the router IP address.

Default

None

Command Mode

VRF Router Configuration

ip bgp synchronization

Enables the router to accept routes from BGP peers without waiting for an update from the IGP.

Syntax

- **default ip bgp synchronization**
- **ip bgp synchronization**
- **no ip bgp synchronization**

Default

The default value is enable.

Command Mode

VRF Router Configuration

ip bgp traps enable

Enables BGP traps.

Syntax

- **default ip bgp traps**
- **default ip bgp traps enable**
- **ip bgp traps enable**
- **no ip bgp traps**
- **no ip bgp traps enable**

Default

The default value is disable.

Command Mode

VRF Router Configuration

ip bgp vrf-as WORD<0-11>

Configures an autonomous system (AS) number on a particular VRF.

Syntax

- **default ip bgp vrf-as**
- **ip bgp vrf-as WORD<0-11>**
- **no ip bgp vrf-as**

Default

The default value is 0. By default, the VRF context will inherit the AS number configured in the BGP Router Configuration mode, but you can use this command to configure a different AS number.

Command Mode

VRF Router Configuration

ip community-list (for a VRF)

Show the community lists on the VRF Router.

Syntax

- **no ip community-list <1-1024>**
- **no ip community-list <1-1024> community-string WORD<0-256>**
- **no ip community-list <1-1024> memberid <0-65535>**

Command Parameters

<permit|deny>

Sets the access mode, which permits or denies access for matching conditions.

community-list <1-1024>

Creates the specified community list entry. <1-1024> specifies the list id.

community-string WORD<0-256>

Specifies an alphanumeric string value with a string length of 0 to 1536 characters. This string value is either an AS num: community-value or a well-known community string. Well known communities include: internet no-export no-advertise local-as (known as NO_EXPORT_SUBCONFED).

memberId <0-65535>

Adds an entry to the community list. <0-65535> is an integer value that represents the member ID in the community list.

Default

None

Command Mode

VRF Router Configuration

ip dhcp-relay fwd-path (for a VRF)

Create the forwarding path from the client to the server.

Syntax

- **default ip dhcp-relay fwd-path {A.B.C.D} {A.B.C.D}**
- **default ip dhcp-relay fwd-path {A.B.C.D} {A.B.C.D} mode**
- **ip dhcp-relay fwd-path {A.B.C.D} {A.B.C.D}**
- **ip dhcp-relay fwd-path {A.B.C.D} {A.B.C.D} disable**
- **ip dhcp-relay fwd-path {A.B.C.D} {A.B.C.D} enable**
- **ip dhcp-relay fwd-path {A.B.C.D} {A.B.C.D} mode bootp**
- **ip dhcp-relay fwd-path {A.B.C.D} {A.B.C.D} mode bootp_dhcp**
- **ip dhcp-relay fwd-path {A.B.C.D} {A.B.C.D} mode dhcp**
- **no ip dhcp-relay fwd-path {A.B.C.D} {A.B.C.D}**

Command Parameters

{A.B.C.D}

Creates a forwarding path to the Dynamic Host Configuration Protocol (DHCP) server. A.B.C.D is the IP address of the server. The default IP address of the relay is the address of the interface.



Tip

If the relay is a virtual router configured on this interface, you must set the vrid.

disable

Disables the forwarding path.

enable

Enables the forwarding path.

mode <bootp|dhcp|bootp_dhcp>

Configures DHCP mode to forward BootP messages only, Dynamic Host Configuration Protocol (DHCP) messages only, or both. The default is both.

Default

None

Command Mode

VRF Router Configuration

ip dhcp-relay fwd-path mode (for a VRF)

Modify Dynamic Host Configuration Protocol (DHCP) mode to forward BootP messages only, DHCP messages only, or both.

Syntax

- **default ip dhcp-relay fwd-path {A.B.C.D} {A.B.C.D} mode**
- **ip dhcp-relay fwd-path {A.B.C.D} {A.B.C.D} mode bootp**
- **ip dhcp-relay fwd-path {A.B.C.D} {A.B.C.D} mode bootp_dhcp**
- **ip dhcp-relay fwd-path {A.B.C.D} {A.B.C.D} mode dhcp**

Command Parameters

<bootp|dhcp|bootp_dhcp>

Configures DHCP mode to forward BootP messages only, Dynamic Host Configuration Protocol (DHCP) messages only, or both. The default is both.

Default

The default mode is both.

Command Mode

VRF Router Configuration

ip icmp (for a VRF)

Enable Internet Control Message Protocol (ICMP) redirect and unreachable messages.

Syntax

- **default ip icmp**
- **default ip icmp drop-fragments**
- **default ip icmp unreachable**
- **ip icmp unreachable**
- **ip icmp drop-fragments**
- **no ip icmp**
- **no ip icmp drop-fragments**
- **no ip icmp unreachable**

Command Parameters

unreachable

Enables the switch to send Internet Control Message Protocol (ICMP) unreachable messages. When enabled, generates Internet Control Message Protocol (ICMP) network unreachable messages if the destination network is not reachable from this router. These messages help determine if the routing switch is reachable over the network. The default is disabled.

drop-fragments

The parameter enables to drop the Fragmented ICMP packet filtering at the switch.

Default

The default is disabled.

Command Mode

VRF Router Configuration

ip icmp echo-broadcast-request (for a VRF)

Enables or disables the processing of IPv4 ICMP messages sent to a broadcast address for a non-zero VRF.

Syntax

- **default ip icmp echo-broadcast-request**
- **ip icmp echo-broadcast-request**
- **no ip icmp echo-broadcast-request**

Command Parameters

echo broadcast-request

Enables or disables the processing of IPv4 ICMP messages sent to a broadcast address for a non-zero VRF. The default value is enabled.

Default

The default is enabled.

Command Mode

VRF Router Configuration

ip igmp (for a VRF)

Configure Internet Group Management Protocol (IGMP) for each interface to change default multicasting operations.

Syntax

- **default ip igmp ssm-map {A.B.C.D} {A.B.C.D}**
- **default ip igmp ssm-map {A.B.C.D} {A.B.C.D} [enable]**

- **ip igmp generate-log**
- **ip igmp generate-trap**
- **ip igmp immediate-leave-mode <multiple-user|one-user>**
- **ip igmp ssm [dynamic-learning] [group-range {A.B.C.D/X}]**
- **ip igmp ssm-map {A.B.C.D} {A.B.C.D} [enable]**
- **ip igmp ssm-map all**
- **no ip igmp ssm-map {A.B.C.D} {A.B.C.D}**
- **no ip igmp ssm-map {A.B.C.D} {A.B.C.D} [enable]**

Command Parameters

generate-log

Sets the Internet Group Management Protocol (IGMP) log.

generate-trap

Sets the Internet Group Management Protocol (IGMP) trap.

immediate-leave-mode <multiple-user|one-user

Enables immediate leave mode to users which is either a single user or multiple users.

ssm [dynamic-learning] [group-range {A.B.C.D/X}]

Enables and sets the Source Specific Multicast (SSM) features. The parameter, dynamic-learning enables SSM dynamic learning. The parameter, group range {A.B.C.D/X} configures the range group address and mask. The SSM range parameter extends the default SSM range of 232/8 to include an IP multicast address. You can configure existing applications without having to change their group configurations. This parameter specifies an IP multicast address within the range of 224.0.0.0 and 239.255.255.255. The default is 232.0.0.0. The address mask is the IP address mask of the multicast group. The default is 255.0.0.0.

ssm-map all

Enables the Source Specific Multicast (SSM) map table for all static entries.

ssm-map{A.B.C.D} {A.B.C.D}[enable]

Enables the Source Specific Multicast (SSM) map table for a specific entry or creates a static entry for a specific group. The parameter, {A.B.C.D} {A.B.C.D} creates a static SSM channel table entry by specifying the group and source IP addresses. The first IP address is an IP multicast address within the SSM range. The second IP address is the source IP address and it it is an IP host address that sends traffic to the group. The default for {A.B.C.D}{A.B.C.D} enable is enable for each entry. The default is enable for each entry.

ssm-map{A.B.C.D}[enable]

Enables the administrative state for a specific entry (group). This variable does not affect the dynamically-learned entries. This state determines whether the switch uses the static entry or saves it for future use. The default is enable for each entry.

Default

None

Command Mode

VRF Router Configuration

ip igmp generate-log (for a VRF)

Enables the generation of IGMP log messages.

Syntax

- **default ip igmp generate-log**
- **ip igmp generate-log**
- **no ip igmp generate-log**

Default

The default is disabled.

Command Mode

VRF Router Configuration

ip igmp generate-trap (for a VRF)

Enables the generation of IGMP traps.

Syntax

- **default ip igmp generate-trap**
- **ip igmp generate-trap**
- **no ip igmp generate-trap**

Default

The default is disabled.

Command Mode

VRF Router Configuration

ip igmp immediate-leave-mode (for a VRF)

Configures the fast leave mode.

Syntax

- **default ip igmp immediate-leave-mode multiple-user**
- **default ip igmp immediate-leave-mode one-user**
- **ip igmp immediate-leave-mode multiple-user**
- **ip igmp immediate-leave-mode one-user**
- **no ip igmp immediate-leave-mode multiple-user**
- **no ip igmp immediate-leave-mode one-user**

Command Parameters

multiple-user

Removes all group members on a fast leave-enabled interface port after receiving the first leave message from a member. This behavior is the same as the conventional fast leave process.

one-user

Removes from the group only the IGMP member who sent the leave message. Traffic does not stop if other receivers exist on the interface port.

Default

The default is multiple-user.

Command Mode

VRF Router Configuration

ip igmp ssm dynamic-learning (for a VRF)

Enables SSM dynamic learning for the VRF.

Syntax

- **default ip igmp ssm dynamic-learning**
- **ip igmp ssm dynamic-learning**
- **ip igmp ssm dynamic-learning group-range {A.B.C.D/X}**
- **no ip igmp ssm dynamic-learning**

Command Parameters

group-range {A.B.C.D/X}

Extends the default SSM range of 232/8 to include an IP multicast address. You can configure existing applications without changing their group configuration.

Default

The default is enabled.

Command Mode

VRF Router Configuration

ip igmp ssm group-range (for a VRF)

Extends the default SSM range of 232/8 to include an IP multicast address. You can configure existing applications without changing their group configuration.

Syntax

- **default ip igmp ssm**
- **ip igmp ssm group-range {A.B.C.D/X}**
- **no ip igmp ssm**

Command Parameters

{A.B.C.D/X}

Specifies the IP address. The IP address must be within the range of 224.0.0.0 and 239.255.255.255.

Default

The default IP address is 0.0.0.232. The default mask is 0.0.0.255.

Command Mode

VRF Router Configuration

ip igmp ssm-map (for a VRF)

Configures the SSM map table to map groups to their sending source.

Syntax

- **default ip igmp ssm-map {A.B.C.D} {A.B.C.D}**
- **default ip igmp ssm-map {A.B.C.D} {A.B.C.D} enable**
- **default ip igmp ssm-map all**
- **ip igmp ssm-map {A.B.C.D} {A.B.C.D}**
- **ip igmp ssm-map {A.B.C.D} {A.B.C.D} enable**
- **ip igmp ssm-map all**

- **no ip igmp ssm-map {A.B.C.D} {A.B.C.D}**
- **no ip igmp ssm-map {A.B.C.D} {A.B.C.D} enable**
- **no ip igmp ssm-map all**

Command Parameters

{A.B.C.D} {A.B.C.D}

Enables the SSM map table for a specific entry or creates a static entry for a specific group. {A.B.C.D} {A.B.C.D} creates a static SSM channel table entry by specifying the group and source IP address. The first IP address is an IP multicast address within the SSM range. The second IP address is the source IP address. The source address is an IP host address that sends traffic to the group.

all

Enables the SSM map table for all static entries.

enable

Enables the static entry.

Default

The default is disabled.

Command Mode

VRF Router Configuration

Usage Guidelines

Before you disable or delete an ssm-map, always send IGMPv1 or IGMPv2 leave messages from hosts that operate in IGMPv1 or IGMPv2. If you do not perform this action, receiving and processing reports in SSM range on an IGMP interface enabled with IGMPv1 or IGMPv2 can lead to unexpected behavior.

ip igmp stream-timeout <10-432000>

Specifies the activity timeout for IGMP snooping streams in seconds.

Syntax

- **default ip igmp stream-timeout**
- **ip igmp stream-timeout <10-432000>**

Default

The default is 300 seconds.

Command Mode

VRF Router Configuration

ip isid-list (for a VRF)

Create an I-SID list to use with IS-IS accept policies.

Syntax

- **ip isid-list WORD<1-32> <0-16777215>**
- **ip isid-list WORD<1-32> list WORD<1-1024>**
- **no ip isid-list WORD<1-32> <0-16777215>**
- **no ip isid-list WORD<1-32> list WORD<1-1024>**

Command Parameters

<0-16777215>

Specifies an I-SID value.

list WORD<1-1024>

Specifies a list of I-SID values in one of the following formats (1,3,5,8-10).

WORD<1-32>

Specifies a name for the I-SID list.

Default

None

Command Mode

VRF Router Configuration

Usage Guidelines

When creating an I-SID list, you can add I-SID entries until the maximum limit for supported Layer 3 I-SIDs is reached. The system truncates any additional I-SID entries. The maximum limit includes the I-SIDs for locally configured Layer 3 VSNs and the I-SIDs specified for IS-IS accept policy filters.

Use the command **show ip isid-list vrf WORD<1-16>** to view the list of truncated I-SIDs.

When deleting an I-SID list, ensure that the I-SID list is not associated with an IS-IS accept policy. Otherwise the deletion fails. An I-SID list associated with an accept policy cannot be deleted because it must contain at least one constituent I-SID.

ip more-specific-non-local-route (for a VRF)

Enable the more-specific-non-local-route feature. If enabled, the switch can enter a more specific nonlocal route into the routing table.

Syntax

- **default ip more-specific-non-local-route [enable]**
- **ip more-specific-non-local-route [enable]**
- **no ip more-specific-non-local-route [enable]**

Command Parameters

enable

Enable more-specific-non-local-route

Default

The default is disabled.

Command Mode

VRF Router Configuration

ip mroute resource-usage (for a VRF)

Configures the resource usage counters.

Syntax

- **default ip mroute resource-usage egress-threshold <0-32767>**
- **default ip mroute resource-usage egress-threshold <0-32767> ingress-threshold**
- **default ip mroute resource-usage ingress-threshold <0-32767>**
- **default ip mroute resource-usage log-msg**
- **default ip mroute resource-usage trap-msg**
- **ip mroute resource-usage egress-threshold <0-32767>**
- **ip mroute resource-usage egress-threshold <0-32767> ingress-threshold <0-32767>**
- **ip mroute resource-usage ingress-threshold <0-32767>**
- **ip mroute resource-usage log-msg**
- **ip mroute resource-usage trap-msg**
- **no ip mroute resource-usage egress-threshold <0-32767>**

- **no ip mroute resource-usage egress-threshold <0-32767> ingress-threshold**
- **no ip mroute resource-usage ingress-threshold <0-32767>**
- **no ip mroute resource-usage log-msg**
- **no ip mroute resource-usage trap-msg**

Command Parameters

egress-threshold <0-32767>

Configures the egress record threshold (S,G). A notification message is sent if this value is exceeded. The default is 0.

ingress-threshold <0-32767>

Configures the ingress record threshold (peps). A notification message is sent if this value is exceeded. The default is 0.

log-msg

Configures the notification method for sending only a log message after the threshold level is exceeded. The default is disabled.

log-msg

Configures the notification method for sending only a log message after the threshold level is exceeded. The default is disabled.

trap-msg

Configures the notification method for sending only a trap message after the threshold level is exceeded. The default is disabled.

trap-msg

Configures the notification method for sending only a trap message after the threshold level is exceeded. The default is disabled

Default

None

Command Mode

VRF Router Configuration

ip msdp (for a VRF)

Create an MSDP instance on a user defined VRF to allow further configuration to take place.

Syntax

- **ip msdp**

Default

None

Command Mode

VRF Router Configuration

ip msdp apply redistribute (for a VRF)

Apply MSDP redistribution filters.

Syntax

- **default ip msdp apply redistribute**
- **ip msdp apply redistribute**
- **no ip msdp apply redistribute**

Default

None

Command Mode

VRF Router Configuration

ip msdp connect—retry (for a VRF)

Configure the connect-retry period to specify the amount of time, in seconds, between connection attempts for peering sessions.

Syntax

- **default ip msdp connect—retry {A.B.C.D} <1-65535>**
- **ip msdp connect—retry {A.B.C.D} <1-65535>**
- **no ip msdp connect—retry {A.B.C.D} <1-65535>**

Command Parameters

{A.B.C.D}

Specifies the MSDP peer IP address.

<1-65535>

Specifies the connect-retry interval in seconds. The default is 30 seconds.

Default

The default is 30 seconds.

Command Mode

VRF Router Configuration

ip msdp description

Configure a peer description to add descriptive text to an MSDP peer for easy identification of a peer.

Syntax

- **default ip msdp description**
- **ip msdp description {A.B.C.D} WORD<1-255>**
- **no ip msdp description**

Command Parameters

{A.B.C.D}

Specifies the MSDP peer IP address.

WORD<1-255>

Specifies a descriptive text to a MSDP peer in the range of 1-255 characters.

Default

None

Command Mode

VRF Router Configuration

ip msdp enable (for a VRF)

Enable Multicast Source Discovery Protocol (MSDP).

Syntax

- **default ip msdp enable**
- **ip msdp enable**
- **no ip msdp enable**

Default

The default is disabled.

Command Mode

VRF Router Configuration

ip msdp keepalive (for a VRF)

Configure keepalive messages to adjust the interval in seconds at which an MSDP peer sends keep alive messages.

Syntax

- **default ip msdp keepalive {A.B.C.D} <0-21845> <0-65535>**
- **ip msdp keepalive {A.B.C.D} <0-21845> <0-65535>**
- **no ip msdp keepalive {A.B.C.D} <0-21845> <0-65535>**

Command Parameters

{A.B.C.D}

Specifies the MSDP peer IP address.

<0-21845>

Specifies the keep alive interval in seconds. The default is 60 seconds.

<0-65535>

Specifies the hold time interval in seconds. The default is 75 seconds. 0 seconds means the peer never expires. Values 1 and 2 are not allowed.

Default

The default is 60 seconds.

Command Mode

VRF Router Configuration

ip msdp md5-authentication (for a VRF)

Configure Message Digest (MD) 5 authentication to secure control messages on the TCP connection between MSDP peers.

Syntax

- **default ip msdp md5-authentication**
- **ip msdp md5-authentication**

- **ip msdp md5-authentication {A.B.C.D} [enable]**
- **no ip msdp md5-authentication {A.B.C.D} [enable]**

Command Parameters

{A.B.C.D}

Specifies the MSDP peer IP address.

enable

Enables MD5 authentication.

Default

The default is disabled.

Command Mode

VRF Router Configuration

ip msdp mesh-group (for a VRF)

Configure mesh groups to reduce SA flooding. A mesh group does not forward SA messages to other group members.

Syntax

- **default ip msdp mesh-group WORD<1-64> {A.B.C.D}**
- **ip msdp mesh-group WORD<1-64> {A.B.C.D}**
- **no ip msdp mesh-group WORD<1-64> {A.B.C.D}**

Command Parameters

{A.B.C.D}

Specifies the MSDP peer IP address.

WORD<1-64>

Specifies the mesh group name.

Default

None

Command Mode

VRF Router Configuration

ip msdp originator-id (for a VRF)

Configure the originator ID to set the Rendezvous Point (RP) address inside the Source Active (SA) message.

Syntax

- **default ip msdp originator-id {A.B.C.D}**
- **ip msdp originator-id {A.B.C.D}**
- **no ip msdp originator-id {A.B.C.D}**

Command Parameters

{A.B.C.D}

Specifies the MSDP source IP address.

Default

None

Command Mode

VRF Router Configuration

ip msdp password peer (for a VRF)

Configure the case sensitive password for MD5 authentication

Syntax

- **default ip msdp password peer {A.B.C.D}**
- **ip msdp password peer {A.B.C.D} WORD<1-80>**
- **no ip msdp password peer {A.B.C.D} WORD<1-80>**

Command Parameters

{A.B.C.D}

Specifies the MSDP peer IP address.

WORD<1-80>

Specifies the MD5 authentication password.

Default

None

Command Mode

VRF Router Configuration

ip msdp peer

Configure an MSDP peer to establish a peer relationship between the local MSDP enabled router and a peer in another domain.

Syntax

- **default ip msdp peer {A.B.C.D}**
- **default ip msdp peer {A.B.C.D} enable**
- **default ip msdp peer {A.B.C.D} remote-as WORD<0-11>**
- **ip msdp peer {A.B.C.D}**
- **ip msdp peer {A.B.C.D} enable**
- **ip msdp peer {A.B.C.D} remote-as WORD<0-11>**
- **no ip msdp peer {A.B.C.D}**
- **no ip msdp peer {A.B.C.D} enable**
- **no ip msdp peer {A.B.C.D} remote-as WORD<0-11>**

Command Parameters

{A.B.C.D}

Specifies the MSDP peer IP address.

WORD<0-11>

Specifies the AS number of the MSDP peer, 0-65535 (2-Byte AS) 0-4294967295 (4-Byte AS).

Default

The default is disabled.

Command Mode

VRF Router Configuration

ip msdp redistribute (for a VRF)

Filter SPB routes to filter which (S,G,RP) entries sent out to all MSDP peers.

Syntax

- **default ip msdp redistribute**
- **ip msdp redistribute**

- **no ip msdp redistribute**

Default

None

Command Mode

VRF Router Configuration

ip msdp redistribute route-policy (for a VRF)

Create the route policy name.

Syntax

- **default ip msdp redistribute route-policy WORD<1-64>**
- **ip msdp redistribute route-policy WORD<1-64>**
- **no ip msdp redistribute route-policy WORD<1-64>**

Command Parameters

WORD<1-64>

Specifies the route policy name.

Default

None

Command Mode

VRF Router Configuration

ip msdp sa-filter in (for a VRF)

Create the inbound filter.

Syntax

- **default ip msdp sa-filter in {A.B.C.D}**
- **default ip msdp sa-filter in {A.B.C.D} route-policy WORD<1-64>**
- **ip msdp sa-filter in {A.B.C.D}**
- **ip msdp sa-filter in {A.B.C.D} route-policy WORD<1-64>**
- **no ip msdp sa-filter in {A.B.C.D}**
- **no ip msdp sa-filter in {A.B.C.D} route-policy WORD<1-64>**

Command Parameters

{A.B.C.D}

Specifies the MSDP peer IP address.

route-policy WORD<1-64>

Specifies the route policy name for an inbound filter.

Default

None

Command Mode

VRF Router Configuration

ip msdp sa-filter out (for a VRF)

Create the outbound filter.

Syntax

- **default ip msdp sa-filter out {A.B.C.D}**
- **default ip msdp sa-filter out {A.B.C.D} route-policy WORD<1-64>**
- **ip msdp sa-filter out {A.B.C.D}**
- **ip msdp sa-filter out {A.B.C.D} route-policy WORD<1-64>**
- **ip msdp sa-filter out {A.B.C.D} route-policy WORD<1-64>**
- **no ip msdp sa-filter out {A.B.C.D}**

Command Parameters

{A.B.C.D}

Specifies the MSDP peer IP address.

route-policy WORD<1-64>

Specifies the route policy name for an outbound filter.

Default

None

Command Mode

VRF Router Configuration

ip msdp sa-limit (for a VRF)

Specifies the maximum number of SA messages to keep in SA cache.

Syntax

- **default ip msdp sa-limit {A.B.C.D} <0-6144>**
- **ip msdp sa-limit {A.B.C.D} <0-6144>**
- **no ip msdp sa-limit {A.B.C.D} <0-6144>**

Command Parameters

{A.B.C.D}

Specifies the MSDP peer IP address.

<0-6144>

Specifies the maximum number of SA messages to keep in SA cache. The default is 6144 messages.

Default

The default is 6144.

Command Mode

VRF Router Configuration

ip msdp ttl-threshold (for a VRF)

Configure the time-to-live (TTL) threshold to limit which multicast data packets the router encapsulated in SA Messaged forwarded to an MSDP peer.

Syntax

- **default ip msdp ttl-threshold {A.B.C.D} <1-255>**
- **ip msdp ttl-threshold {A.B.C.D} <1-255>**
- **no ip msdp ttl-threshold {A.B.C.D} <1-255>**

Command Parameters

{A.B.C.D}

Specifies the MSDP peer IP address.

<1-255>

Specifies the Time-To-Live value. The default is 1.

Default

The default is 1.

Command Mode

VRF Router Configuration

ip ospf (for a VRF)

Enables OSPF on the VRF.

Syntax

- **default ip ospf**
- **ip ospf**
- **no ip ospf**

Default

The default value is disabled.

Command Mode

VRF Router Configuration

ip ospf accept adv-rtr

Configures OSPF accept policies for the VRF.

Syntax

- **default ip ospf accept adv-rtr {A.B.C.D}**
- **default ip ospf accept adv-rtr {A.B.C.D} enable**
- **default ip ospf accept adv-rtr {A.B.C.D} metric-type**
- **default ip ospf accept adv-rtr {A.B.C.D} route-map**
- **ip ospf accept adv-rtr {A.B.C.D}**
- **ip ospf accept adv-rtr {A.B.C.D} enable**
- **ip ospf accept adv-rtr {A.B.C.D} metric-type { type1 | type2 | any }**
- **ip ospf accept adv-rtr {A.B.C.D} route-map WORD<0-64>**
- **no ip ospf accept adv-rtr {A.B.C.D}**
- **no ip ospf accept adv-rtr {A.B.C.D} enable**

Command Parameters

{A.B.C.D}

Specifies the IP address.

adv-rtr <A.B.C.D>

Specifies the advertising router IP address.

enable

Enables an OSPF accept entry for a specified advertising router.

metric-type <type1|type2|any>

OSPF external routes match this entry. any means match all external routes. type1 means match external type 1 only. type2 means match external type 2 only.

route-map WORD<0-64>

Specifies the name of the route policy to use for filtering external routes advertised by the specified advertising router before accepting into the routing table.

vrf WORD<1-16>

Specifies the configuration for a particular VRF. WORD<1-16> specifies the VRF name.

Default

None

Command Mode

VRF Router Configuration

ip ospf admin-state

Shows the administrative status of OSPF for the router. Enabled denotes that the OSPF process is active on at least one interface; disabled disables it for all interfaces.

Syntax

- **default ip ospf admin-state**
- **ip ospf admin-state**
- **no ip ospf admin-state**

Default

None

Command Mode

VRF Router Configuration

ip ospf area (for a VRF)

Configure OSPF parameters on a port to control how OSPF behaves.

Syntax

- **default ip ospf area {A.B.C.D}**
- **default ip ospf area {A.B.C.D} default-cost**
- **default ip ospf area {A.B.C.D} import**
- **default ip ospf area {A.B.C.D} import-summaries enable**
- **default ip ospf area {A.B.C.D} stub**
- **ip ospf area {A.B.C.D}**
- **ip ospf area {A.B.C.D} default-cost <0-16777215>**
- **ip ospf area {A.B.C.D} import external**
- **ip ospf area {A.B.C.D} import noexternal**
- **ip ospf area {A.B.C.D} import nssa**
- **ip ospf area {A.B.C.D} import-summaries enable**
- **ip ospf area {A.B.C.D} stub**
- **no ip ospf area {A.B.C.D}**
- **no ip ospf area {A.B.C.D} import-summaries enable**

Command Parameters

<A.B.C.D>

Configures the OSPF identification number for the area, typically formatted as an IP address.

default-cost <0-16777215>

Stub area default metric for this stub area, which is the cost from 0 to 16 777 215. This is the metric value applied at the indicated type of service.

import <external|noexternal|nssa>

Specifies the type of area: external - Stub and NSSA (not so stubby area) are both false. noexternal-Configures the area as stub area. nssa - Configures the area as NSSA.

import-summaries enable

Configures the area support to import summary advertisements into a stub area. This parameter must be used only if the area is a stub area.

stub

Configures the import external option for this area as stub. A stub area has only one exit point (router interface) from the area.

Default

None

Command Mode

VRF Router Configuration

ip ospf area range (for a VRF)

Use aggregate area ranges to reduce the number of link-state advertisements that are required within the area. You can also control advertisements.

Syntax

- **default ip ospf area range {A.B.C.D} {A.B.C.D/X} { summary-link | nssa-extlink } advertise-metric**
- **default ip ospf area range {A.B.C.D} {A.B.C.D/X} { summary-link | nssa-extlink } advertise-mode**
- **ip ospf area range {A.B.C.D} {A.B.C.D/X} { summary-link | nssa-extlink } advertise-metric <0-65535>**
- **ip ospf area range {A.B.C.D} {A.B.C.D/X} { summary-link | nssa-extlink } advertise-mode { summarize | suppress | no-summarize }**
- **no ip ospf area range {A.B.C.D} {A.B.C.D/X} { summary-link | nssa-extlink }**

Command Parameters

{A.B.C.D} {A.B.C.D/X}

<A.B.C.D> identifies an OSPF area and <A.B.C.DX> is the IP address and subnet mask of the range, respectively.

<summary-link|nssaextlink>

Specifies the LSA type. If you configure the range as type nssaextlink then you cannot configure the advertise-metric.

advertise-metric <0-65535>

Changes the advertised metric cost of the OSPF area range.

advertise-mode <summarize|suppress|nosummarize

Changes the advertisement mode of the range.

Default

None

Command Mode

VRF Router Configuration

ip ospf area virtual-link (for a VRF)

Enables or disables the automatic creation of virtual links.

Syntax

- **default ip ospf area virtual-link {A.B.C.D} {A.B.C.D}**
- **default ip ospf area virtual-link {A.B.C.D} {A.B.C.D} authentication-type**
- **default ip ospf area virtual-link {A.B.C.D} {A.B.C.D} dead-interval**
- **default ip ospf area virtual-link {A.B.C.D} {A.B.C.D} hello-interval**
- **default ip ospf area virtual-link {A.B.C.D} {A.B.C.D} primary-md5-key**
- **default ip ospf area virtual-link {A.B.C.D} {A.B.C.D} retransmit-interval**
- **default ip ospf area virtual-link {A.B.C.D} {A.B.C.D} transit-delay**
- **ip ospf area virtual-link {A.B.C.D} {A.B.C.D}**
- **ip ospf area virtual-link {A.B.C.D} {A.B.C.D} authentication-key WORD<0-8>**
- **ip ospf area virtual-link {A.B.C.D} {A.B.C.D} authentication-type message-digest**
- **ip ospf area virtual-link {A.B.C.D} {A.B.C.D} authentication-type none**
- **ip ospf area virtual-link {A.B.C.D} {A.B.C.D} authentication-type simple**
- **ip ospf area virtual-link {A.B.C.D} {A.B.C.D} dead-interval <0-2147483647>**
- **ip ospf area virtual-link {A.B.C.D} {A.B.C.D} hello-interval <1-65535>**
- **ip ospf area virtual-link {A.B.C.D} {A.B.C.D} primary-md5-key <1-255>**
- **ip ospf area virtual-link {A.B.C.D} {A.B.C.D} retransmit-interval <0-3600>**
- **ip ospf area virtual-link {A.B.C.D} {A.B.C.D} transit-delay <0-3600>**
- **no ip ospf area virtual-link {A.B.C.D} {A.B.C.D}**

Command Parameters

<A.B.C.D> <A.B.C.D>

Creates a virtual interface area identifier. <A.B.C.D> <A.B.C.D> specify the area ID and the virtual interface ID, respectively.

authentication-key WORD<0-8>

Configures the authentication key of up to eight characters.

authentication-type <none|simple|messagedigest>

authenticationtype is: none, simple password, or MD5 authentication. If simple, all OSPF updates received by the interface must contain the authentication key specified by the area authentication-key command. If MD5, they must contain the MD5 key. The default is none.

dead-interval <0-2147483647>

Configures the dead interval, in seconds, for the virtual interface, the number of seconds that a router Hello packets are not seen before its neighbors declare the router down. This value must be at least four times the Hello interval value. The default is 60.

hello-interval <1-65535>

Configures the Hello interval, in seconds, on the virtual interface for the length of time (in seconds) between the Hello packets that the router sends on the interface. The default is 10.

primary-md5-key <1-255>

Changes the primary key used to encrypt outgoing packets. <1-255> is the ID for the message digest key.

retransmit-interval <0- 3600>

Configures the retransmit interval for the virtual interface, the number of seconds between link-state advertisement retransmissions. The range is from 0 to 3600.

transit-delay <0-3600>

Configures the transit delay for the virtual interface, the estimated number of seconds required to transmit a link-state update over the interface. The range is from 0 to 3600.

Default

None

Command Mode

VRF Router Configuration

ip ospf area virtual-link message-digest-key (for a VRF)

Configure a Message Digest 5 algorithm (MD5) key for the virtual interface.

Syntax

- **default ip ospf area virtual-link message-digest-key {A.B.C.D} {A.B.C.D} <1-255>**
- **ip ospf area virtual-link message-digest-key {A.B.C.D} {A.B.C.D} <1-255> md5-key WORD<1-16>**

- **no ip ospf area virtual-link message-digest-key {A.B.C.D} {A.B.C.D} <1-255>**

Command Parameters

<1-255> md5-key WORD<1-16>

<A.B.C.D> is the virtual interface id. <1-255> is the ID for the message digest key. WORD<0-16> is an alphanumeric password in the range of 0 to 16 characters.

<A.B.C.D> <A.B.C.D>

Adds a Message Digest 5 algorithm (MD5) key to the interface. At most, you can configure two MD5 keys to an interface. <A.B.C.D> identifies an OSPF area.

Default

None

Command Mode

VRF Router Configuration

ip ospf as-boundary-router (for a VRF)

Specifies ASBR status, the router is an autonomous system boundary router (ASBR).

Syntax

- **default ip ospf as-boundary-router**
- **ip ospf as-boundary-router**
- **no ip ospf as-boundary-router**

Default

None

Command Mode

VRF Router Configuration

ip ospf as-boundary-router enable (for a VRF)

Configure the router as an autonomous system boundary router (ASBR).

Syntax

- **default ip ospf as-boundary-router enable**

- **ip ospf as-boundary-router enable**
- **no ip ospf as-boundary-router enable**

Default

The default is disabled.

Command Mode

VRF Router Configuration

ip ospf auto-vlink (for a VRF)

Use automatic virtual links to provide an automatic, dynamic backup link for vital OSPF traffic. Automatic virtual links require more system resources than manually configured virtual links.

Syntax

- **default ip ospf auto-vlink**
- **ip ospf auto-vlink**
- **no ip ospf auto-vlink**

Default

None

Command Mode

VRF Router Configuration

ip ospf bad-lsa-ignore enable (for a VRF)

Configures the switch to accept bad LSAs, for example, with a hole in the mask. If you use the no operator with this command, the switch ignores bad LSAs.

Syntax

- **default ip ospf bad-lsa-ignore**
- **default ip ospf bad-lsa-ignore enable**
- **ip ospf bad-lsa-ignore enable**
- **no ip ospf bad-lsa-ignore**
- **no ip ospf bad-lsa-ignore enable**

Default

The default is disabled.

Command Mode

VRF Router Configuration

ip ospf default-cost

Configures the default OSPF metrics.

Note
Not all parameters appear on all hardware platforms.

Syntax

- **default ip ospf default-cost ethernet**
- **default ip ospf default-cost fast-ethernet**
- **default ip ospf default-cost forty-gig-ethernet**
- **default ip ospf default-cost gig-ethernet**
- **default ip ospf default-cost ten-gig-ethernet**
- **default ip ospf default-cost twentyfive-gig-ethernet**
- **ip ospf default-cost ethernet <1-65535>**
- **ip ospf default-cost fast-ethernet <1-65535>**
- **ip ospf default-cost forty-gig-ethernet <1-65535>**
- **ip ospf default-cost gig-ethernet <1-65535>**
- **ip ospf default-cost ten-gig-ethernet <1-65535>**
- **ip ospf default-cost twentyfive-gig-ethernet <1-65535>**

Command Parameters

ethernet <1-65535>

Configures the OSPF default metrics for 10 Mb/s Ethernet. The default is 100.

fast-ethernet <1-65535>

Configures the OSPF default metrics for 100 Mb/s (Fast) Ethernet. The default is 10.

forty-gig-ethernet <1-65535>

Configures the OSPF default metrics for 40 Gigabit Ethernet. The default is 1.

gig-ethernet <1-65535>

Configures the OSPF default metrics for Gigabit Ethernet. The default is 1.

hundred-gig-ethernet <1-65535>

Configures the OSPF default metrics for 100 Gigabit Ethernet. The default is 1.

ten-gig-ethernet <1-65535>

Configures the OSPF default metrics for 10 Gigabit Ethernet. The default is 1.

twentyfive-gig-ethernet <1-65535>

Configures the OSPF default metrics for 25 Gigabit Ethernet. The default is 1.

vlan

Configures the OSPF default metrics for a VLAN. The default is 1.

Default

None

Command Mode

VRF Router Configuration

ip ospf helper-mode-disable

Disable Graceful Restart helper mode.

Syntax

- **default helper-mode-disable**
- **helper-mode-disable**
- **no helper-mode-disable**

Default

The default is enabled when OSPF is configured.

Command Mode

VRF Router Configuration

ip ospf host-route {A.B.C.D} (for a VRF)

Use host routes when the switch resides in a network that uses routing protocols other than OSPF.

Syntax

- **default ip ospf host-route {A.B.C.D}**
- **default ip ospf host-route {A.B.C.D} metric**
- **ip ospf host-route {A.B.C.D}**

- **ip ospf host-route {A.B.C.D} metric <0-65535>**
- **no ip ospf host-route {A.B.C.D}**

Command Parameters

<A.B.C.D>

Specifies the IP address of the host router in a.b.c.d format.

metric <0-65535>

Configures the metric (cost) for the host route.

Default

None

Command Mode

VRF Router Configuration

ip ospf neighbor (for a VRF)

Configure NBMA neighbors so that the interface can participate in Designated Router election. All OSPF neighbors that you manually configure are NBMA neighbors.

Syntax

- **default ip ospf neighbor {A.B.C.D}**
- **ip ospf neighbor {A.B.C.D} priority <0-255>**
- **no ip ospf neighbor {A.B.C.D}**

Command Parameters

<A.B.C.D>

Identifies an OSPF area in IP address format A.B.C.D.

priority <0-255>

Changes the priority level of the neighbor.

Default

None

Command Mode

VRF Router Configuration

ip ospf network (for a VRF)

Enable OSPF on a network.

Syntax

- **default ip ospf network {A.B.C.D}**
- **default ip ospf network {A.B.C.D} {A.B.C.D}**
- **ip ospf network {A.B.C.D}**
- **ip ospf network {A.B.C.D} {A.B.C.D}**
- **ip ospf network {A.B.C.D} area {A.B.C.D}**
- **no ip ospf network {A.B.C.D}**
- **no ip ospf network {A.B.C.D} {A.B.C.D}**

Command Parameters

{A.B.C.D}

Specifies the IP address of the network.

area {A.B.C.D}

Specifies the OSPF area.

Default

None

Command Mode

VRF Router Configuration

ip ospf redistribute

Configure and enable redistribution entries to allow a protocol to announce routes of a certain source type, for example, static, RIP, or direct.

Syntax

- **default ip ospf redistribute { bgp| direct | isis | ospf | rip | static | dvr }**
- **default ip ospf redistribute { bgp| direct | isis | ospf | rip | static | dvr } vrf-src WORD<1-16>**
- **default ip ospf redistribute { bgp| direct | isis | ospf | rip | static | dvr } enable**
- **default ip ospf redistribute { bgp| direct | isis | ospf | rip | static | dvr } metric**

- **default ip ospf redistribute { bgp| direct | isis | ospf | rip | static | dvr } metric-type**
- **default ip ospf redistribute { bgp| direct | isis | ospf | rip | static | dvr } route-map**
- **default ip ospf redistribute { bgp| direct | isis | ospf | rip | static | dvr } subnets**
- **default ip ospf redistribute { bgp| direct | isis | ospf | rip | static | dvr } subnets vrf-src WORD<1-16>**
- **ip ospf redistribute { bgp| direct | isis | ospf | rip | static | dvr }**
- **ip ospf redistribute { bgp| direct | isis | ospf | rip | static | dvr } subnets { allow | suppress }**
- **ip ospf redistribute { bgp| direct | isis | ospf | rip | static | dvr } vrf-src WORD<1-16>**
- **ip ospf redistribute { bgp| direct | isis | ospf | rip | static | dvr } enable**
- **ip ospf redistribute { bgp| direct | isis | ospf | rip | static | dvr } metric <0-65535>**
- **ip ospf redistribute { bgp| direct | isis | ospf | rip | static | dvr } metric-type { type1 | type2 | any }**
- **ip ospf redistribute { bgp| direct | isis | ospf | rip | static | dvr } route-map WORD<0-64>**
- **ip ospf redistribute { bgp| direct | isis | ospf | rip | static | dvr } subnets { allow | suppress } vrf-src WORD<1-16>**
- **no ip ospf redistribute { bgp| direct | isis | ospf | rip | static | dvr }**
- **no ip ospf redistribute { bgp| direct | isis | ospf | rip | static | dvr } route-policy vrf-src WORD<1-16>**
- **no ip ospf redistribute { bgp| direct | isis | ospf | rip | static | dvr } vrf-src WORD<1-16>**
- **no ip ospf redistribute { bgp| direct | isis | ospf | rip | static | dvr } enable**
- **no ip ospf redistribute { bgp| direct | isis | ospf | rip | static | dvr } route-map**

Command Parameters

{ bgp| direct | isis | ospf | rip | static | dvr }

Specifies the type of routes to redistribute-the protocol source.

If you use the direct parameter, configured secondary IP subnets are always redistributed unless you configure a filtering route-map with redistribution.

enable

Enables the route redistribution instance.

metric <0-65535>

Configures the metric to apply to redistributed routes.

metric-type { type1 | type2 | any }

Specifies a type 1 or a type 2 metric. For metric type 1, the cost of the external routes is equal to the sum of all internal costs and the external cost. For metric type 2, the cost of the external routes is equal to the external cost alone.

route-map WORD<0-64>

Configures the route policy to apply to redistributed routes.

subnets { allow | suppress }

Indicates whether the subnets are advertised individually or aggregated to their classful subnet. Choose allow to advertise the subnets individually with the learned or configured mask of the subnet. The default is allow.

vrf WORD <1-16>

Specifies the VRF instance.

vrf-src WORD<1-16>

Specifies the source VRF instance. This parameter is not required for redistribution within the same VRF.

Default

None

Command Mode

VRF Router Configuration

ip ospf rfc1583-compatibility enable (for a VRF)

Controls the preference rules used when the router chooses among multiple autonomous system external (ASE) LSAs which advertise the same destination. If enabled, the preference rule is the same as that specified by RFC1583. If disabled, the preference rule is as described in RFC2328, which can prevent routing loops when ASE LSAs for the same destination originate from different areas.

Syntax

- **default ip ospf rfc1583-compatibility**
- **default ip ospf rfc1583-compatibility enable**
- **ip ospf rfc1583-compatibility enable**
- **no ip ospf rfc1583-compatibility**
- **no ip ospf rfc1583-compatibility enable**

Default

The default is disabled.

Command Mode

VRF Router Configuration

ip ospf router-id (for a VRF)

Configure OSPF parameters on the switch to control how OSPF behaves on the system. The switch uses global parameters to communicate with other OSPF routers. Globally configure OSPF before you configure OSPF for an interface, port, or VLAN.

Syntax

- **default ip ospf router-id**
- **ip ospf router-id {A.B.C.D}**
- **no ip ospf router-id**

Command Parameters

router-id <A.B.C.D>

Configures the OSPF router ID IP address, where A.B.C.D is the IP address.

Default

None

Command Mode

VRF Router Configuration

ip ospf timers basic holddown (for a VRF)

Configures the OSPF hold-down timer value, the length of time (in seconds) that OSPF continues to advertise a network after determining that it is unreachable.

Syntax

- **default ip ospf timers basic**
- **default ip ospf timers basic holddown**
- **ip ospf timers basic holddown <3-60>**

Command Parameters

<3-60>

Configures the holddown timer value.

Default

The default is 120 seconds.

Command Mode

VRF Router Configuration

ip ospf trap (For a VRF)

Enable OSPF traps.

Syntax

- **default ip ospf trap**
- **default ip ospf trap enable**
- **ip ospf trap enable**
- **no ip ospf trap**
- **no ip ospf trap enable**

Command Parameters

enable

Enables OSPF traps.

Default

The default value is disable.

Command Mode

VRF Router Configuration

ip prefix-list (for a VRF)

Allows or denies specific route updates. A prefix list policy specifies route prefixes to match. When there is a match, the route is used. Configure a prefix list and apply the list to any IP route policy.

Syntax

- **ip prefix-list WORD<1-64> {A.B.C.D/X}**
- **ip prefix-list WORD<1-64> {A.B.C.D/X} ge <0-32>**
- **ip prefix-list WORD<1-64> {A.B.C.D/X} id <1-2147483647>**
- **ip prefix-list WORD<1-64> {A.B.C.D/X} le <0-32>**
- **ip prefix-list WORD<1-64> name WORD<1-64>**
- **no ip prefix-list WORD<1-64>**
- **no ip prefix-list WORD<1-64> {A.B.C.D/X}**

Command Parameters

<A.B.C.D/X> [<ge|le> <0-32>]

Adds a prefix entry to the prefix list. A.B.C.D/X is the IP address and mask. <ge|le> <0-32> Lower bound and higher bound mask lengths together can define a range of networks. Use the no operator to remove a prefix entry from the prefix list: no ip prefix-list WORD<1-64> <A.B.C.D/X>

name WORD<1-64>

Renames the specified prefix list. The name length is from 1 to 64 characters.

Default

None

Command Mode

VRF Router Configuration

ip rip (for a VRF)

Enables RIP on the VRF.

Syntax

- **ip rip**
- **no ip rip**

Default

The default is disabled.

Command Mode

VRF Router Configuration

ip rip default-metric (for a VRF)

Configure RIP default import metric. This value is used by RIP announce of OSPF internal routes if the policy does not specify metric. 0 is used for deconfiguration.

Syntax

- **default ip rip default-metric**
- **ip rip default-metric <0-15>**

Command Parameters

<0-15>

Configures the value of default import metric to import a route into RIP domain.

Default

The default value is -1.

Command Mode

VRF Router Configuration

ip rip domain (for a VRF)

Specify the RIP domain.

Syntax

- **default ip rip domain**
- **ip rip domain <0-39321>**

Command Parameters

<0-39321>

Specifies the RIP domain.

Default

The default is 0.

Command Mode

VRF Router Configuration

ip rip enable (for a VRF)

Enable RIP routing on the interface.

Syntax

- **default ip rip enable**
- **ip rip enable**
- **no ip rip enable**

Command Parameters

enable

Enables RIP routing on the interface.

Default

The default is disabled.

Command Mode

VRF Router Configuration

ip rip redistribute

Configure and enable redistribution entries to allow a protocol to announce routes of a certain source type, for example, static, RIP, or direct.

Syntax

- **default ip rip redistribute WORD<0-32>**
- **default ip rip redistribute WORD<0-32> enable**
- **default ip rip redistribute WORD<0-32> enable vrf-src WORD<1-16>**
- **default ip rip redistribute WORD<0-32> metric**
- **default ip rip redistribute WORD<0-32> metric vrf-src WORD<1-16>**
- **default ip rip redistribute WORD<0-32> route-map**
- **default ip rip redistribute WORD<0-32> route-map vrf-src WORD<1-16>**
- **default ip rip redistribute WORD<0-32> vrf-src WORD<1-16>**
- **ip rip redistribute WORD<0-32>**
- **ip rip redistribute WORD<0-32> enable**
- **ip rip redistribute WORD<0-32> enable vrf-src WORD<1-16>**
- **ip rip redistribute WORD<0-32> metric <0-65535>**
- **ip rip redistribute WORD<0-32> metric <0-65535> vrf-src WORD<1-16>**

- **ip rip redistribute WORD<0-32> metric <0-65535>**
- **ip rip redistribute WORD<0-32> metric <0-65535> vrf-src WORD<1-16>**
- **ip rip redistribute WORD<0-32> route-map WORD<0-64>**
- **ip rip redistribute WORD<0-32> route-map WORD<0-64> vrf-src WORD<1-16>**
- **ip rip redistribute WORD<0-32> vrf-src WORD<1-16>**
- **no ip rip redistribute WORD<0-32>**
- **no ip rip redistribute WORD<0-32> enable**
- **no ip rip redistribute WORD<0-32> enable vrf-src WORD<1-16>**
- **no ip rip redistribute WORD<0-32> route-map**
- **no ip rip redistribute WORD<0-32> route-map vrf-src WORD<1-16>**
- **no ip rip redistribute WORD<0-32> vrf-src WORD<1-16>**

Command Parameters

enable

Enables the route redistribution instance.

metric <0-65535>

Configures the metric to apply to redistributed routes.

route-map WORD<0-64>

Configures the route map to apply to redistributed routes.

vrf WORD <1-16>

Specifies the VRF instance.

vrf-src WORD<1-16>

Specifies the source VRF instance. This parameter is not required for redistribution within the same VRF.

WORD<0-32>

Specifies the type of routes to redistribute-the protocol source.

Default

None

Command Mode

VRF Router Configuration

ip rip redistribute { direct | isis | ospf | rip | static }

Configure and enable redistribution entries to allow a protocol to announce routes of a certain source type, for example, static, RIP, or direct.

Syntax

- **default ip rip redistribute { direct | isis | ospf | rip | static }**
- **default ip rip redistribute { direct | isis | ospf | rip | static } enable**
- **default ip rip redistribute { direct | isis | ospf | rip | static } enable vrf-src WORD<1-16>**
- **default ip rip redistribute { direct | isis | ospf | rip | static } metric**
- **default ip rip redistribute { direct | isis | ospf | rip | static } metric vrf-src WORD<1-16>**
- **default ip rip redistribute { direct | isis | ospf | rip | static } route-map**
- **default ip rip redistribute { direct | isis | ospf | rip | static } route-map vrf-src WORD<1-16>**
- **default ip rip redistribute { direct | isis | ospf | rip | static } vrf-src WORD<1-16>**
- **ip rip redistribute { direct | isis | ospf | rip | static }**
- **ip rip redistribute { direct | isis | ospf | rip | static } enable**
- **ip rip redistribute { direct | isis | ospf | rip | static } enable vrf-src WORD<1-16>**
- **ip rip redistribute { direct | isis | ospf | rip | static } metric <0-65535>**
- **ip rip redistribute { direct | isis | ospf | rip | static } metric <0-65535> vrf-src WORD<1-16>**
- **ip rip redistribute { direct | isis | ospf | rip | static } route-map WORD<0-64>**
- **ip rip redistribute { direct | isis | ospf | rip | static } route-map WORD<0-64> vrf-src WORD<1-16>**
- **ip rip redistribute { direct | isis | ospf | rip | static } vrf-src WORD<1-16>**
- **no ip rip redistribute { direct | isis | ospf | rip | static }**
- **no ip rip redistribute { direct | isis | ospf | rip | static } enable**
- **no ip rip redistribute { direct | isis | ospf | rip | static } enable vrf-src WORD<1-16>**
- **no ip rip redistribute { direct | isis | ospf | rip | static } route-map**
- **no ip rip redistribute { direct | isis | ospf | rip | static } route-map vrf-src WORD<1-16>**
- **no ip rip redistribute { direct | isis | ospf | rip | static } vrf-src WORD<1-16>**

Command Parameters

{ direct | isis | ospf | rip | static }

Specifies the type of routes to redistribute-the protocol source.

If you use the direct parameter, configured secondary IP subnets are always redistributed unless you configure a filtering route-map with redistribution.

enable

Enables the route redistribution instance.

metric <0-65535>

Configures the metric to apply to redistributed routes.

route-map WORD<0-64>

Configures the route map to apply to redistributed routes.

vrf WORD <1-16>

Specifies the VRF instance.

vrf-src WORD<1-16>

Specifies the source VRF instance. This parameter is not required for redistribution within the same VRF.

Default

None

Command Mode

VRF Router Configuration

ip rip timers basic holddown (for a VRF)

Configures the RIP hold-down timer value, the length of time (in seconds) that RIP continues to advertise a network after determining that it is unreachable.

Syntax

- **default ip rip timers basic holddown**
- **ip rip timers basic holddown <0-360>**

Command Parameters

<0-360>

Configures the holddown timer value.

Default

The default is 120 seconds.

Command Mode

VRF Router Configuration

ip rip timers basic timeout (for a VRF)

Configure the RIP timeout interval.

Syntax

- **default ip rip timers basic timeout**
- **ip rip timers basic timeout <15-259200>**

Command Parameters

<15-259200>

Configures the value of default import metric to import a route into RIP domain.

Default

The default is 180.

Command Mode

VRF Router Configuration

ip rip timers basic update (for a VRF)

Configure the RIP update timer. The update time is the time interval between RIP updates.

Syntax

- **default ip rip timers basic update**
- **ip rip timers basic update <1-360>**

Command Parameters

<1-360>

Configures the update interval.

Default

The default is 30 seconds.

Command Mode

VRF Router Configuration

ip route (for a VRF)

Configure a static route for a VRF. Use this command to:

- Create static routes for data traffic in a specific VRF context for any platform.
- Create static routes for a VRF associated with a Segmented Management Instance CLIP or Management VLAN (routing mode).
- Configure a discard static route to the destination a router advertises to avoid routing loops after the router aggregates or injects routes to other routers.

Syntax

- **default ip route <A.B.C.D A.B.C.D | A.B.C.D/X> {A.B.C.D} [dynamic] [enable] [local-next-hop enable] [preference]**
- **ip route <A.B.C.D A.B.C.D | A.B.C.D/X> {discard | {A.B.C.D}} enable [next-hop-vrf WORD<1-16>**
- **ip route <A.B.C.D A.B.C.D | A.B.C.D/X> {A.B.C.D} local-next-hop enable**
- **ip route <A.B.C.D A.B.C.D | A.B.C.D/X> {discard | {A.B.C.D}} name <0-64>**
- **ip route <A.B.C.D A.B.C.D | A.B.C.D/X> {discard | {A.B.C.D}} preference <1-255> [next-hop-vrf WORD<1-16>]**
- **ip route <A.B.C.D A.B.C.D | A.B.C.D/X> {discard | {A.B.C.D}} weight <1-65535> [local-next-hop enable] [name <0-64>] [next-hop-vrf WORD<1-16>] [preference <1-255>]**
- **no ip route <A.B.C.D A.B.C.D | A.B.C.D/X> {discard | {A.B.C.D}} [dynamic] [enable] [next-hop-vrf WORD<1-16>] [local-next-hop enable] [preference]**

Command Parameters

<A.B.C.D A.B.C.D | A.B.C.D/X>

Specifies the IP address and mask for the route destination in one of the following formats:

- A.B.C.D A.B.C.D
- A.B.C.D/X

The default route specifies a route to all networks for which there are no explicit routes in the Forwarding Information Base or the routing table. The default route has a prefix length of zero (RFC 1812).

{A.B.C.D}

Specifies the IP address of the next-hop router (the next router at which packets must arrive on this route).

For a discard static route, configure the next hop address as ffff.ffff.ffff.ffff.ffff.ffff.ffff.ffff. This value indicates the traffic to this route is discarded.

discard

Specifies the route as a discard static route.

name WORD<0-64>

Specifies the name associated with the static route.

preference <1-255>

Indicates the route preference of this entry. If you can use more than one route to forward IP traffic, the switch uses the route with the highest preference. The higher the number, the higher the preference.

weight <1-65535>

Specifies the static route cost.

WORD<0-16>

Specifies the VRF ID in inter-VRF static-route configuration.

Default

None

Command Mode

VRF Router Configuration

Usage Guidelines

Static routes for the management OOB, if supported, and management VLAN (non-routing mode) must use the Segmented Management Instance. The management CLIP can use the Segmented Management Instance or routes in the associated VRF routing table manager (RTM). The management VLAN (routing mode) uses the Fabric Engine routing table or routes in the associated VRF.

ip route preference protocol ebgp (for a VRF)

Configure the route preference within a specific VRF context.

Syntax

- **default ip route preference protocol ebgp**
- **ip route preference protocol ebgp <0-255>**

Command Parameters

<0-255>

Configures the preference value for the specified protocol. Preference value (0 is reserved for Local routes).

If two protocols have the same configured value, the default value is used.

Default

The default is 45.

Command Mode

VRF Router Configuration

ip route preference protocol ibgp (for a VRF)

Specifies the route preference within a specific VRF context.

Syntax

- **default ip route preference protocol ibgp**
- **ip route preference protocol ibgp <0-255>**

Command Parameters

<0-255>

Configures the preference value for the specified protocol. Preference value (0 is reserved for Local routes).

If two protocols have the same configured value, the default value is used.

Default

The default is 175.

Command Mode

VRF Router Configuration

ip route preference protocol isis-external (for a VRF)

Configure the route preference for an external IP route within a specific VRF context.

Syntax

- **default ip route preference protocol isis-external**
- **ip route preference protocol isis-external <0-255>**

Command Parameters

<0-255>

Specifies the preference value for the specified protocol. Preference value (0 is reserved for Local routes).

Default

The default is 130.

Command Mode

VRF Router Configuration

ip route preference protocol isis-internal (for a VRF)

Configure the route preference for an internal IP route within a specific VRF context.

Syntax

- **default ip route preference protocol isis-internal**
- **ip route preference protocol isis-internal <0-255>**

Command Parameters

<0-255>

Specifies the preference value for the specified protocol. Preference value (0 is reserved for Local routes).

Default

The default is 7.

Command Mode

VRF Router Configuration

ip route preference protocol ospf-extern1 (for a VRF)

Specifies the route preference within a specific VRF context.

Syntax

- **default ip route preference protocol ospf-extern1**
- **ip route preference protocol ospf-extern1 <0-255>**

Command Parameters

<0-255>

Configures the preference value for the specified protocol. Preference value (0 is reserved for Local routes).

If two protocols have the same configured value, the default value is used.

Default

The default is 120.

Command Mode

VRF Router Configuration

ip route preference protocol ospf-extern2 (for a VRF)

Specifies the route preference within a specific VRF context.

Syntax

- **default ip route preference protocol ospf-extern2**
- **ip route preference protocol ospf-extern2 <0-255>**

Command Parameters

<0-255>

Configures the preference value for the specified protocol. Preference value (0 is reserved for Local routes).

If two protocols have the same configured value, the default value is used.

Default

The default is 125.

Command Mode

VRF Router Configuration

ip route preference protocol ospf-inter (for a VRF)

Specifies the route preference within a specific VRF context.

Syntax

- **default ip route preference protocol ospf-inter**
- **ip route preference protocol ospf-inter <0-255>**

Command Parameters

<0-255>

Configures the preference value for the specified protocol. Preference value (0 is reserved for Local routes).

If two protocols have the same configured value, the default value is used.

Default

The default is 25.

Command Mode

VRF Router Configuration

ip route preference protocol ospf-intra (for a VRF)

Specifies the static IP route preference within a specific VRF context.

Syntax

- **default ip route preference protocol ospf-intra**
- **ip route preference protocol ospf-intra <0-255>**

Command Parameters

<0-255>

Configures the preference value for the specified protocol. Preference value (0 is reserved for Local routes).

If two protocols have the same configured value, the default value is used.

Default

The default is 20.

Command Mode

VRF Router Configuration

ip route preference protocol rip (for a VRF)

Specifies the static IP route preference within a specific VRF context.

Syntax

- **default ip route preference protocol rip**
- **ip route preference protocol rip <0-255>**

Command Parameters

<0-255>

Configures the preference value for the specified protocol. Preference value (0 is reserved for Local routes).

If two protocols have the same configured value, the default value is used.

Default

The default is 100.

Command Mode

VRF Router Configuration

ip route preference protocol spbm-level1 (for a VRF)

Specifies the route preference within a specific VRF context.

Syntax

- **default ip route preference protocol spbm-level1**
- **ip route preference protocol spbm-level1 <0-255>**

Command Parameters

<0-255>

Configures the preference value for the specified protocol. Preference value (0 is reserved for Local routes).

If two protocols have the same configured value, the default value is used.

Default

The default is 7.

Command Mode

VRF Router Configuration

ip route preference protocol static (for a VRF)

Specifies the static IP route preference within a specific VRF context.

Syntax

- **default ip route preference protocol static**
- **default ip route preference protocol static <0-255>**

Command Parameters

<0-255>

Configures the preference value for the specified protocol. Preference value (0 is reserved for Local routes).

If two protocols have the same configured value, the default value is used.

Default

The default is 5.

Command Mode

VRF Router Configuration

ip routing (for a VRF)

Enable IP forwarding (routing) on a VRF context so that the VRF supports routing.

Syntax

- **default ip routing**
- **ip routing**

- **no ip routing**

Default

None

Command Mode

VRF Router Configuration

Usage Guidelines

You cannot configure this option on a DvR Leaf node.

ip source-route (for VRF)

Enables IPv4 source routing on the specified VRF.

Syntax

- **default ip source-route**
- **ip source-route**
- **no ip source-route**

Default

Disabled

Command Mode

VRF Router Configuration

ip spb-multicast-policy enable (for VRF)

Enables the IP Shortest Path Bridging (SPB) multicast policy on a particular VRF.

Syntax

- **default ip spb-multicast-policy enable**
- **ip spb-multicast-policy enable**
- **no ip spb-multicast-policy enable**

Default

None

Command Mode

VRF Router Configuration

ip spb-multicast-policy route-map (for VRF)

Configures the route-map of IP SPB Multicast Policy on a particular VRF.

Syntax

- **default ip spb-multicast-policy route-map**
- **ip spb-multicast-policy route-map WORD<0-64>**

Command Parameters

WORD<0-64>

Specifies the name of the route-map policy.

Default

None

Command Mode

VRF Router Configuration

ip spb-pim-gw foreign-source (for a VRF)

Configures a static foreign source.

Syntax

- **default ip spb-pim-gw foreign-source {A.B.C.D} group {A.B.C.D}**
- **ip spb-pim-gw foreign-source {A.B.C.D} group {A.B.C.D}**
- **no ip spb-pim-gw foreign-source {A.B.C.D} group {A.B.C.D}**

Command Parameters

{A.B.C.D}

Specifies the multicast foreign source IP address.

group {A.B.C.D}

Specifies the group IP address.

Default

None

Command Mode

VRF Router Configuration

ip supernet (for a VRF)

Enable or disable supernetting for a VRF context. If supernetting is enabled, the VRF can learn routes with a route mask of less then eight bits. Routes with a mask length less than eight bits cannot have ECMP paths, even if the ECMP feature is enabled.

Syntax

- **default ip supernet**
- **ip supernet**
- **no ip supernet**

Default

The default is disabled.

Command Mode

VRF Router Configuration

ip ttl (for a VRF)

Configures the default time-to-live (TTL) value for a routed packet. The TTL is the maximum number of seconds before a packet is discarded.

Syntax

- **default ip ttl**
- **ip ttl <1-255>**
- **no ip ttl**

Default

The default value is 255.

Command Mode

VRF Router Configuration

ipv6 alternative-route (for VRF)

Enable IPv6 alternative route.

Syntax

- **default ipv6 alternative-route**
- **ipv6 alternative-route**
- **no ipv6 alternative-route**

Default

The default is enabled.

Command Mode

VRF Router Configuration

ipv6 dhcp-relay (for VRF)

Configure Dynamic Host Configuration Protocol (DHCP) Relay.

Syntax

- **default ipv6 dhcp-relay fwd-path WORD<0-255> WORD<0-255>**
- **ipv6 dhcp-relay fwd-path WORD<0-255> WORD<0-255> enable**
- **no ipv6 dhcp-relay fwd-path WORD<0-255> WORD<0-255> enable**

Command Parameters

enable

Enables dhcp-relay forwarding path.

fwd-path

Creates a forwarding path.

WORD<0-255>

Specifies Agent IPv6 address.

WORD<0-255>

Specifies Server IPv6 address.

Default

None

Command Mode

VRF Router Configuration

ipv6 ecmp (for VRF)

IPv6 ECMP configuration.

Syntax

- **default ipv6 ecmp enable**
- **default ipv6 ecmp max-path**
- **ipv6 ecmp enable**
- **ipv6 ecmp max-path <1-8>**
- **no ipv6 ecmp enable**

Command Parameters

enable

Enables IPv6 ECMP globally.

max-path <1-8>

Specifies the maximum number of ECMP paths. The default is 1.

Default

The default is disabled.

Command Mode

VRF Router Configuration

ipv6 forwarding (for VRF)

Configures IPv6 router with respect to the forwarding of datagrams received by, but not addressed to, this entity. Enable forwarding to act as a router.

Syntax

- **default ipv6 forwarding**
- **ipv6 forwarding**
- **no ipv6 forwarding**

Default

By default, forwarding is enabled on an interface. You must enable it globally before the interface configuration takes effect.

Command Mode

VRF Router Configuration

ipv6 hop-limit (for VRF)

Insert a value into the hop-limit field of the IPv6 header.

Syntax

- **default ipv6 hop-limit <0-255>**
- **ipv6 hop-limit <0-255>**

Command Parameters

<0-255>

Inserts a value into the hop-limit field of IPv6 header in the range of 0 to 255.

Default

The default hop limit is 64.

Command Mode

VRF Router Configuration

ipv6 icmp drop-fragments (for a VRF)

Enable Internet Control Message Protocol (ICMP) redirect and unreachable messages on the VRF instance. The system inspects each incoming IPv6 ICMP packet to determine if it should drop or forward it.

Syntax

- **default ipv6 icmp drop-fragments**
- **ipv6 icmp drop-fragments**
- **no ipv6 icmp drop-fragments**

Default

The default is disabled.

Command Mode

VRF Router Configuration

ipv6 icmp echo multicast-request (for VRF)

Enables or disables the processing of IPv6 ICMP messages sent to a multicast address globally.

Syntax

- **default ipv6 icmp echo multicast-request**
- **ipv6 icmp echo multicast-request**
- **no ipv6 icmp echo multicast-request**

Command Parameters

echo multicast-request

Enables or disables the processing of IPv6 ICMP messages sent to a multicast address globally. The default value is enabled.

Default

The default is enabled.

Command Mode

VRF Router Configuration

ipv6 icmp error-interval (for VRF)

Configure the interval (in milliseconds) for sending ICMPv6 error messages.

Syntax

- **default ipv6 icmp error-interval**
- **ipv6 icmp error-interval <0-2147483647>**

Command Parameters

<1-2147483647>

Configures the interval (in milliseconds) for sending ICMPv6 error messages. An entry of 0 seconds results in no sent ICMPv6 error messages.

Default

The default error interval is 1000.

Command Mode

VRF Router Configuration

ipv6 icmp error-quota (for VRF)

Configure the number of Internet Control Message Protocol (ICMP) error messages that can be sent during the ICMP error interval.

Syntax

- **default ipv6 icmp error-quota**
- **ipv6 icmp error-quota <0-2000000>**

Command Parameters

<0-2000000>

Configures the number of internet Control Message Protocol (ICMP) error messages that the system can send during the ICMP error interval. A value of zero instructs the system not to send any ICMP error messages.

Default

The default error quota is 50.

Command Mode

VRF Router Configuration

ipv6 icmp unreach-msg (for VRF)

Enable Internet Control Message Protocol (ICMP) network unreachable messages.

Syntax

- **default ipv6 icmp unreach-msg**
- **ipv6 icmp unreach-msg**
- **no ipv6 icmp unreach-msg**

Default

By default ICMP network unreachable messages are disabled.

Command Mode

VRF Router Configuration

ipv6 ipvpn (for VRF)

Enable IPv6 IP VPN configurations.

Syntax

- **default ipv6 ipvpn enable**
- **ipv6 ipvpn enable**
- **no ipv6 ipvpn enable**

Command Parameters

enable

Enables IPv6 IP VPN.

Default

None

Command Mode

VRF Router Configuration

ipv6 isis (for VRF)

Enable IPv6 isis accept and redistribute commands.

Syntax

- **default ipv6 isis redistribute direct enable**
- **default ipv6 isis redistribute static enable**
- **ipv6 isis redistribute direct enable**
- **ipv6 isis redistribute static enable**
- **no ipv6 isis redistribute direct enable**
- **no ipv6 isis redistribute static enable**

Command Parameters

direct

Configures IPv6 isis redistribute direct command.

enable

Enable isis redistribute direct command.

redistribute

Configures IPv6 isis redistribute.

static

Configures IPv6 isis redistribute static command.

Default

None

Command Mode

VRF Router Configuration

ipv6 isis accept (for a VRF)

Configure an IPv6 Intermediate-System-to-Intermediate-System (IS-IS) accept policy instance to apply to all IPv6 routes from all Backbone Edge Bridges (BEBs) for a Virtual Routing and Forwarding (VRF) instance.

Syntax

- **ipv6 isis accept i-sid <0-16777215>**
- **ipv6 isis accept i-sid <0-16777215> enable**
- **ipv6 isis accept i-sid <0-16777215> route-map WORD<1-64>**
- **ipv6 isis accept isid-list WORD<1-32>**
- **ipv6 isis accept isid-list WORD<1-32> enable**
- **ipv6 isis accept isid-list WORD<1-32> route-map WORD<1-64>**
- **ipv6 isis accept route-map WORD<1-64>**
- **no ipv6 isis accept i-sid <0-16777215>**
- **no ipv6 isis accept i-sid <0-16777215> enable**
- **no ipv6 isis accept i-sid <0-16777215> route-map**
- **no ipv6 isis accept isid-list WORD<1-32>**
- **no ipv6 isis accept isid-list WORD<1-32> enable**
- **no ipv6 isis accept isid-list WORD<1-32> route-map**
- **no ipv6 isis accept route-map**

Command Parameters

enable

Enables the IPv6 IS-IS accept policy.

i-sid <0-16777215>

Specifies a service instance identifier (I-SID) number representing a local or remote IPv6 Layer 3 VSN. The number 0 represents the GRT.

isid-list WORD <1-32>

Specifies a list of I-SID numbers representing local or remote IPv6 Layer 3 VSNs.

route-map WORD<1-64>

Specifies an IPv6 IS-IS route policy.

Default

The default is disabled.

Command Mode

VRF Router Configuration

ipv6 isis accept adv-rtr (for a VRF)

Configure an IPv6 Intermediate-System-to-Intermediate-System (IS-IS) accept policy instance to apply to all IPv6 routes for a specific Backbone Edge Bridge (BEB) for a Virtual Routing and Forwarding (VRF) instance.

Syntax

- **ipv6 isis accept adv-rtr <x.xx.xx>**
- **ipv6 isis accept adv-rtr <x.xx.xx> enable**
- **ipv6 isis accept adv-rtr <x.xx.xx> i-sid <0-16777215>**
- **ipv6 isis accept adv-rtr <x.xx.xx> i-sid <0-16777215> enable**
- **ipv6 isis accept adv-rtr <x.xx.xx> i-sid <0-16777215> route-map WORD<1-64>**
- **ipv6 isis accept adv-rtr <x.xx.xx> isid-list WORD<1-32>**
- **ipv6 isis accept adv-rtr <x.xx.xx> isid-list WORD<1-32> enable**
- **ipv6 isis accept adv-rtr <x.xx.xx> isid-list WORD<1-32> route-map WORD<1-64>**
- **ipv6 isis accept adv-rtr <x.xx.xx> route-map WORD<1-64>**
- **no ipv6 isis accept adv-rtr <x.xx.xx>**
- **no ipv6 isis accept adv-rtr <x.xx.xx> enable**
- **no ipv6 isis accept adv-rtr <x.xx.xx> i-sid <0-16777215>**
- **no ipv6 isis accept adv-rtr <x.xx.xx> i-sid <0-16777215> enable**
- **no ipv6 isis accept adv-rtr <x.xx.xx> i-sid <0-16777215> route-map**
- **no ipv6 isis accept adv-rtr <x.xx.xx> isid-list WORD<1-32>**
- **no ipv6 isis accept adv-rtr <x.xx.xx> isid-list WORD<1-32> enable**
- **no ipv6 isis accept adv-rtr <x.xx.xx> isid-list WORD<1-32> route-map**
- **no ipv6 isis accept adv-rtr <x.xx.xx> route-map**

Command Parameters

adv-rtr <x.xx.xx>

Specifies a specific advertising BEB for the IPv6 IS-IS accept policy. The x.xx.xx variable specifies an SPBM nickname.

enable

Enables the IPv6 IS-IS accept policy.

i-sid <0-16777215>

Configures the service instance identifier (I-SID) to which the IPv6 IS-IS accept policy applies. The number 0 represents the GRT.

isid-list WORD <1-32>

Configures a list of I-SIDs to which the IPv6 IS-IS accept policy applies.

route-map WORD<1-64>

Specifies an IPv6 IS-IS route policy.

Default

The default is disabled.

Command Mode

VRF Router Configuration

ipv6 isis redistribute bgp

Identify IPv6 routes on the local switch to be announced into the Shortest Path Bridging MAC (SPBM) network.

Syntax

- **default ipv6 isis redistribute bgp enable**
- **default ipv6 isis redistribute bgp metric**
- **default ipv6 isis redistribute bgp metric-type**
- **default ipv6 isis redistribute bgp route-map**
- **ipv6 isis redistribute bgp**
- **ipv6 isis redistribute bgp enable**
- **ipv6 isis redistribute bgp metric <0-65535>**
- **ipv6 isis redistribute bgp metric-type external**
- **ipv6 isis redistribute bgp metric-type internal**
- **ipv6 isis redistribute bgp route-map WORD<0-64>**
- **no ipv6 isis redistribute bgp**
- **no ipv6 isis redistribute bgp enable**

- **no ipv6 isis redistribute bgp metric**
- **no ipv6 isis redistribute bgp metric-type**
- **no ipv6 isis redistribute bgp route-map**

Command Parameters

enable

Enables Border Gateway Protocol (BGP) route redistribution.

metric <0-65535>

Specifies the metric for the redistributed route.Use a value that is consistent with the destination protocol. The default is 1.

metrictype external

Specifies the metric type. Specifies a type 1 or a type 2 metric. For metric type 1, the cost of the external routes is equal to the sum of all internal costs and the external cost. For metric type 2, the cost of the external routes is equal to the external cost alone. The default is internal.

metrictype internal

Specifies the metric type. Specifies a type 1 or a type 2 metric. For metric type 1, the cost of the external routes is equal to the sum of all internal costs and the external cost. For metric type 2, the cost of the external routes is equal to the external cost alone. The default is internal.

Default

By default, redistribution is disabled.

Command Mode

VRF Router Configuration

ipv6 isis redistribute direct

Identify IPv6 routes on the local switch to be announced into the Shortest Path Bridging MAC (SPBM) network.

Syntax

- **default ipv6 isis redistribute direct enable**
- **default ipv6 isis redistribute direct metric**
- **default ipv6 isis redistribute direct metric-type**
- **default ipv6 isis redistribute direct route-map**
- **ipv6 isis redistribute direct**
- **ipv6 isis redistribute direct enable**

- **ipv6 isis redistribute direct metric <0-65535>**
- **ipv6 isis redistribute direct metric-type external**
- **ipv6 isis redistribute direct metric-type internal**
- **ipv6 isis redistribute direct route-map WORD<0-64>**
- **no ipv6 isis redistribute direct**
- **no ipv6 isis redistribute direct enable**
- **no ipv6 isis redistribute direct metric**
- **no ipv6 isis redistribute direct metric-type**
- **no ipv6 isis redistribute direct route-map**

Command Parameters

enable

Enables direct route redistribution.

metric <0-65535>

Specifies the metric for the redistributed route.Use a value that is consistent with the destination protocol. The default is 1.

metrictype external

Specifies the metric type. Specifies a type 1 or a type 2 metric. For metric type 1, the cost of the external routes is equal to the sum of all internal costs and the external cost. For metric type 2, the cost of the external routes is equal to the external cost alone. The default is internal.

metrictype internal

Specifies the metric type. Specifies a type 1 or a type 2 metric. For metric type 1, the cost of the external routes is equal to the sum of all internal costs and the external cost. For metric type 2, the cost of the external routes is equal to the external cost alone. The default is internal.

Default

By default, redistribution is disabled.

Command Mode

VRF Router Configuration

ipv6 isis redistribute ospf

Identify IPv6 routes on the local switch to be announced into the Shortest Path Bridging MAC (SPBM) network.

Syntax

- **default ipv6 isis redistribute ospf enable**
- **default ipv6 isis redistribute ospf metric**
- **default ipv6 isis redistribute ospf metric-type**
- **default ipv6 isis redistribute ospf route-map**
- **ipv6 isis redistribute ospf**
- **ipv6 isis redistribute ospf enable**
- **ipv6 isis redistribute ospf metric <0-65535>**
- **ipv6 isis redistribute ospf metric-type external**
- **ipv6 isis redistribute ospf metric-type internal**
- **ipv6 isis redistribute ospf route-map WORD<0-64>**
- **no ipv6 isis redistribute ospf**
- **no ipv6 isis redistribute ospf enable**
- **no ipv6 isis redistribute ospf metric**
- **no ipv6 isis redistribute ospf metric-type**
- **no ipv6 isis redistribute ospf route-map**

Command Parameters

enable

Enables Open Shortest Path First (OSPF) route redistribution.

metric <0-65535>

Specifies the metric for the redistributed route.Use a value that is consistent with the destination protocol. The default is 1.

metrictype external

Specifies the metric type. Specifies a type 1 or a type 2 metric. For metric type 1, the cost of the external routes is equal to the sum of all internal costs and the external cost. For metric type 2, the cost of the external routes is equal to the external cost alone. The default is internal.

metrictype internal

Specifies the metric type. Specifies a type 1 or a type 2 metric. For metric type 1, the cost of the external routes is equal to the sum of all internal costs and the external cost. For metric type 2, the cost of the external routes is equal to the external cost alone. The default is internal.

Default

By default, redistribution is disabled.

Command Mode

VRF Router Configuration

ipv6 isis redistribute static

Identify IPv6 routes on the local switch to be announced into the Shortest Path Bridging MAC (SPBM) network.

Syntax

- **default ipv6 isis redistribute static enable**
- **default ipv6 isis redistribute static metric**
- **default ipv6 isis redistribute static metric-type**
- **default ipv6 isis redistribute static route-map**
- **ipv6 isis redistribute static**
- **ipv6 isis redistribute static enable**
- **ipv6 isis redistribute static metric <0-65535>**
- **ipv6 isis redistribute static metric-type external**
- **ipv6 isis redistribute static metric-type internal**
- **ipv6 isis redistribute static route-map WORD<0-64>**
- **no ipv6 isis redistribute static**
- **no ipv6 isis redistribute static enable**
- **no ipv6 isis redistribute static metric**
- **no ipv6 isis redistribute static metric-type**
- **no ipv6 isis redistribute static route-map**

Command Parameters

enable

Enables static route redistribution.

metric <0-65535>

Specifies the metric for the redistributed route.Use a value that is consistent with the destination protocol. The default is 1.

metrictype external

Specifies the metric type. Specifies a type 1 or a type 2 metric. For metric type 1, the cost of the external routes is equal to the sum of all internal costs and the external cost. For metric type 2, the cost of the external routes is equal to the external cost alone. The default is internal.

metrictype internal

Specifies the metric type. Specifies a type 1 or a type 2 metric. For metric type 1, the cost of the external routes is equal to the sum of all internal costs and the

external cost. For metric type 2, the cost of the external routes is equal to the external cost alone. The default is internal.

Default

By default, redistribution is disabled.

Command Mode

VRF Router Configuration

ipv6 neighbor (for VRF)

Comands to configure IPv6 neighbors globally.

Syntax

- **ipv6 neighbor WORD<0-128> port {slot/port[sub-port]} mac 0x00:0x00:0x00:0x00:0x00:0x00 vlan <1-4059>**
- **no ipv6 neighbor WORD<0-128> port {slot/port[sub-port]}**
- **no ipv6 neighbor WORD<0-128> vlan <1-4059>**

Command Parameters

mac 0x00:0x00:0x00:0x00:0x00:0x00

Specifies the MAC address.

port {slot/port[sub-port]}

Identifies a single slot and port. If your platform supports channelization and the port is channelized, you must also specify the subport in the format slot/port/sub-port.

vlan <1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. On switches that support the *vrf-scaling* and *spbm-config-mode* boot configuration flags, if you enable these flags, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

WORD<0-128>

IPv6 address in hex colon format.

Default

None

Command Mode

VRF Router Configuration

ipv6 ospf (for a VRF)

Configure IPv6 OSPF parameters for a VRF.

Syntax

- **default ipv6 ospf**
- **ipv6 ospf**
- **no ipv6 ospf**

Default

None

Command Mode

VRF Router Configuration

ipv6 ospf area (for a VRF)

Configure OSPF parameters on a VRF to control how OSPF behaves.

Syntax

- **default ipv6 ospf area {A.B.C.D}**
- **default ipv6 ospf area {A.B.C.D} default-cost**
- **default ipv6 ospf area {A.B.C.D} import**
- **default ipv6 ospf area {A.B.C.D} import-summaries enable**
- **ipv6 ospf area {A.B.C.D}**
- **ipv6 ospf area {A.B.C.D} default-cost <0-16777215>**
- **ipv6 ospf area {A.B.C.D} import external**
- **ipv6 ospf area {A.B.C.D} import noexternal**
- **ipv6 ospf area {A.B.C.D} import nssa**
- **ipv6 ospf area {A.B.C.D} import-summaries enable**
- **no ipv6 ospf area {A.B.C.D}**
- **no ipv6 ospf area {A.B.C.D} import-summaries enable**

Command Parameters

{A.B.C.D}

Specifies the area address.

default-cost <0-16777215>

Stub area default metric for this stub area, which is the cost from 0 to 16 777 215. This is the metric value applied at the indicated type of service.

import <external|noexternal|nssa>

Specifies the type of area: external - Stub and NSSA (not so stubby area) are both false. noexternal-Configures the area as stub area. nssa - Configures the area as NSSA.

import-summaries enable

Configures the area support to import summary advertisements into a stub area. This parameter must be used only if the area is a stub area.

Default

None

Command Mode

VRF Router Configuration

ipv6 ospf area range (for a VRF)

Configure OSPF parameters on a VRF to control how OSPF behaves.

Syntax

- **default ipv6 ospf area range {A.B.C.D} WORD<0-255> inter-area-prefix-link [advertise-metric]**
- **default ipv6 ospf area range {A.B.C.D} WORD<0-255> nssa-extlink [advertise-metric]**
- **ipv6 ospf area range {A.B.C.D} WORD<0-255> advertise-mode advertise**
- **ipv6 ospf area range {A.B.C.D} WORD<0-255> advertise-mode not-advertise**
- **ipv6 ospf area range {A.B.C.D} WORD<0-255> inter-area-prefix-link advertise-metric <0-65535>**
- **ipv6 ospf area range {A.B.C.D} WORD<0-255> inter-area-prefix-link advertise-mode advertise**
- **ipv6 ospf area range {A.B.C.D} WORD<0-255> inter-area-prefix-link advertise-mode not-advertise**
- **ipv6 ospf area range {A.B.C.D} WORD<0-255> nssa-extlink advertise-metric <0-65535>**
- **ipv6 ospf area range {A.B.C.D} WORD<0-255> nssa-extlink advertise-mode advertise**

- **ipv6 ospf area range {A.B.C.D} WORD<0-255> nssa-extlink advertise-mode not-advertise**
- **no ipv6 ospf area range {A.B.C.D} WORD<0-255> inter-area-prefix-link**
- **no ipv6 ospf area range {A.B.C.D} WORD<0-255> nssa-extlink**

Command Parameters

{A.B.C.D}

Specifies the area address.

advertise-metric <0-65535>

Specifies the advertise metric value and LSA type. The default advertise-metric is 0.

advertise-mode <advertise|not-advertise>

Configures if the area advertises into other OSPF areas. The default avertise-mode is advertise.

inter-area-prefix-link

Configures the area to use this LSA type.

nssa-extlink

Configures the area to use this LSA type.

WORD<0-255>

Specifies the IPv6 address and prefix.

Default

None

Command Mode

VRF Router Configuration

ipv6 ospf area virtual-link (for a VRF)

Configure OSPF parameters on a VRF to control how OSPF behaves.

Syntax

- **default ipv6 area virtual-link {A.B.C.D} {A.B.C.D}**
- **default ipv6 area virtual-link {A.B.C.D} {A.B.C.D} dead-interval**
- **default ipv6 area virtual-link {A.B.C.D} {A.B.C.D} hello-interval**
- **default ipv6 area virtual-link {A.B.C.D} {A.B.C.D} retransmit-interval**
- **default ipv6 area virtual-link {A.B.C.D} {A.B.C.D} transit-delay**
- **ipv6 area virtual-link {A.B.C.D} {A.B.C.D}**

- **ipv6 area virtual-link {A.B.C.D} {A.B.C.D} dead-interval <1-65535>**
- **ipv6 area virtual-link {A.B.C.D} {A.B.C.D} hello-interval <1-65535>**
- **ipv6 area virtual-link {A.B.C.D} {A.B.C.D} retransmit-interval <1-1800>**
- **ipv6 area virtual-link {A.B.C.D} {A.B.C.D} transit-delay <1-1800>**
- **no ipv6 area virtual-link {A.B.C.D} {A.B.C.D}**

Command Parameters

{A.B.C.D} {A.B.C.D}

Specifies the area address and the virtual link address.

dead-interval <1-65535>

Specifies the dead interval, as the number of seconds to wait before determining the OSPF router is down. The default dead-interval is 60.

hello-interval <1-65535>

Specifies the hello interval, in seconds, for hello packets sent between switches for a virtual interface in an OSPF area. The default hello interval is 10.

retransmit-interval <1-1800>

Specifies the retransmit interval, in seconds, for link-state advertisements. The default retransmit-interval is 5.

transit-delay <1-1800>

Specifies the transit-delay interval, in seconds, required to transmit a link-state update packet over the virtual interface. The default transit-delay is 1.

Default

None

Command Mode

VRF Router Configuration

ipv6 ospf as-boundary-router

Specify ASBR status, the router is an autonomous system boundary router (ASBR).

Syntax

- **default ipv6 ospf as-boundary-router**
- **ipv6 ospf as-boundary-router**
- **no ipv6 ip ospf as-boundary-router**

Default

None

Command Mode

VRF Router Configuration

ipv6 ospf default-cost

Configures the default OSPF metrics.



Note
Not all parameters appear on all hardware platforms.

Syntax

- **default ipv6 ospf default-cost ethernet**
- **default ipv6 ospf default-cost fast-ethernet**
- **default ipv6 ospf default-cost forty-gig-ethernet**
- **default ipv6 ospf default-cost gig-ethernet**
- **default ipv6 ospf default-cost ten-gig-ethernet**
- **default ipv6 ospf default-cost twentyfive-gig-ethernet**
- **ipv6 ospf default-cost ethernet <1-65535>**
- **ipv6 ospf default-cost fast-ethernet <1-65535>**
- **ipv6 ospf default-cost forty-gig-ethernet <1-65535>**
- **ipv6 ospf default-cost gig-ethernet <1-65535>**
- **ipv6 ospf default-cost ten-gig-ethernet <1-65535>**
- **ipv6 ospf default-cost twentyfive-gig-ethernet <1-65535>**
- **ipv6 ospf default-cost vlan**

Command Parameters

ethernet <1-65535>

Configures the OSPF default metrics for 10 Mb/s Ethernet. The default is 100.

fast-ethernet <1-65535>

Configures the OSPF default metrics for 100 Mb/s (Fast) Ethernet. The default is 10.

forty-gig-ethernet <1-65535>

Configures the OSPF default metrics for 40 Gigabit Ethernet. The default is 1.

gig-ethernet <1-65535>

Configures the OSPF default metrics for Gigabit Ethernet. The default is 1.

hundred-gig-ethernet <1-65535>

Configures the OSPF default metrics for 100 Gigabit Ethernet. The default is 1.

ten-gig-ethernet <1-65535>

Configures the OSPF default metrics for 10 Gigabit Ethernet. The default is 1.

twentyfive-gig-ethernet <1-65535>

Configures the OSPF default metrics for 25 Gigabit Ethernet. The default is 1.

vlan

Configures the OSPF default metrics for a VLAN. The default is 1.

Default

None

Command Mode

VRF Router Configuration

ipv6 ospf helper-mode-disable

Disable helper mode for OSPF on a VRF.

Syntax

- **default ipv6 ospf helper-mode-disable**
- **ipv6 ospf helper-mode-disable**
- **no ipv6 ospf helper-mode-disable**

Default

The default is enabled when OSPF is configured.

Command Mode

VRF Router Configuration

ipv6 ospf redistribute

Configure a redistribute entry to announce certain routes into the OSPFv3 domain.

Syntax

- **default ipv6 ospf redistribute { bgp| direct | isis | static }**
- **default ipv6 ospf redistribute { bgp| direct | isis | static } enable**
- **default ipv6 ospf redistribute { bgp| direct | isis | static } metric**

- **default ipv6 ospf redistribute { bgp| direct | isis | static } metric-type**
- **default ipv6 ospf redistribute { bgp| direct | isis | static } route-map**
- **ipv6 ospf redistribute { bgp| direct | isis | static }**
- **ipv6 ospf redistribute { bgp| direct | isis | static } enable**
- **ipv6 ospf redistribute { bgp| direct | isis | static } metric <0-65535>**
- **ipv6 ospf redistribute { bgp| direct | isis | static } metric-type { type1 | type2 }**
- **ipv6 ospf redistribute { bgp| direct | isis | static } route-map WORD<0-64>**
- **no ipv6 ospf redistribute { bgp| direct | isis | static }**
- **no ipv6 ospf redistribute { bgp| direct | isis | static } enable**
- **no ipv6 ospf redistribute { bgp| direct | isis | static } route-map**

Command Parameters

{bgp| direct | isis |static}

Specifies the type of routes to redistribute-the protocol source.

enable

Enables the route redistribution instance.

metric <0-65535>

Configures the metric to apply to redistributed routes.

metric-type { type1 | type2 }

Specifies a type 1 or a type 2 metric. For metric type 1, the cost of the external routes is equal to the sum of all internal costs and the external cost. For metric type 2, the cost of the external routes is equal to the external cost alone.

route-map WORD<0-64>

Configures the route policy to apply to redistributed routes.

Default

None

Command Mode

VRF Router Configuration

ipv6 ospf router-id

Configure the OSPF router ID for a VRF.

Syntax

- **default ipv6 ospf router-id**
- **ipv6 ospf router-id {A.B.C.D}**
- **no ipv6 ospf router-id**

Command Parameters

router-id <A.B.C.D>

Configures the OSPF router ID IP address, where A.B.C.D is the IP address.

Default

None

Command Mode

VRF Router Configuration

ipv6 prefix-list

Use prefix lists to allow or deny specific route updates. A prefix list policy specifies route prefixes to match. When there is a match, the route is used. Configure a prefix list and apply the list to a route policy.

Syntax

- **ipv6 prefix-list WORD<1-64> name WORD<1-64>**
- **ipv6 prefix-list WORD<1-64> WORD<1-256> ge <0- 128>**
- **ipv6 prefix-list WORD<1-64> WORD<1-256> id <1-2147483647>**
- **ipv6 prefix-list WORD<1-64> WORD<1-256> le <0-128>**
- **no ipv6 prefix-list WORD<1-64> [WORD<1-256>]**

Command Parameters

ge <0-128>

Specifies the minimum length to match. Lower bound and higher bound mask lengths together can define a range of networks.

id <1-2147483647>

Specifies the prefix list ID.

le <0-128>

Specifies the maximum length to match. Lower bound and higher bound mask lengths together can define a range of networks.

name WORD<1-64>

Renames the specified prefix list. The name length is from 1 to 64 characters.

WORD<1-256>

Specifies the IPv6 address and length.

WORD<1-64>

Adds a prefix entry to the prefix list. WORD<1-64> is the prefix-list name. WORD<1-256> is the IPv6 address and length. <ge|le><0- 128> is the minimum and maximum length to match. Lower bound and higher bound mask lengths together can define a range of networks.

Default

None

Command Mode

VRF Router Configuration

ipv6 route (for VRF)

Configure a static route to destination IPv6 address prefixes. Use this command to:

- Create static routes for data traffic in a specific VRF context for any platform.
- Create static routes for a VRF associated with a Segmented Management Instance CLIP or Management VLAN (routing mode) interface.
- Configure an IPv6 discard static route to the destination a router advertises to avoid routing loops after the router aggregates or injects routes to other routers.

Syntax

- **default ipv6 route WORD<0-46>**
- **default ipv6 route WORD<0-46> enable [discard] [next-hop WORD<0-46> [port {slot/port[/sub-port]}] [vlan <1-4059>]]**
- **default ipv6 route WORD<0-46> preference [discard] [next-hop WORD<0-46>] [port {slot/port[/sub-port]}] [vlan <1-4059>]]**
- **ipv6 route WORD<0-46> cost <1-65535> [discard] [next-hop WORD<0-46>] [port {slot/port[/sub-port]}] [preference <1-255>]** [vlan <1-4059>]]
- **ipv6 route WORD<0-46> enable [discard] [next-hop WORD<0-46>] [port {slot/port[/sub-port]}] [vlan <1-4059>]**
- **ipv6 route WORD<0-46> preference <1-255> [discard] [next-hop WORD<0-46>] [port {slot/port[/sub-port]}] [vlan <1-4059>]**
- **no ipv6 route WORD<0-46>**
- **no ipv6 route WORD<0-46> enable [discard] [next-hop WORD<0-46>] [port {slot/port[/sub-port]}] [vlan <1-4059>]**

Command Parameters

cost <1-65535>

Specifies the cost or distance ratio to reach the destination for this node. The default cost is 1.

discard

Specifies the route as a discard static route.

enable

Enables the static route on the port. The default state for a new static route is enable.

next-hop WORD<0-46>

Specifies the IPv6 address of the next hop on this route. You do not need to specify the next hop if the devices directly connect to one another. Configure the next hop if the two nodes do not share the same network prefix but reside on the same link.

For a discard static route, configure the next hop address as ffff.ffff.ffff.ffff.ffff.ffff.ffff.ffff. This value indicates the traffic to this route is discarded.

port *{slot/port[/sub-port]}*

Specifies the port to which this entry applies. You must specify the port if the next hop is a link-local address.

preference <1-255>

Specifies the routing preference of the destination IPv6 address. The default preference is 5.

vlan <1-4059>

Specifies the VLAN ID in the range of 1 to 4059. By default, VLAN IDs 1 to 4059 are configurable and the system reserves VLAN IDs 4060 to 4094 for internal use. If you enable VRF scaling and SPBM mode, the system also reserves VLAN IDs 3500 to 3998. VLAN ID 1 is the default VLAN and you cannot create or delete VLAN ID 1.

WORD<0-46>

Specifies the IPv6 destination network address.

Default

The default state for a new static route is enable.

Command Mode

VRF Router Configuration

Usage Guidelines

Static routes for the management OOB, if supported, and management VLAN (non-routing mode) must use the Segmented Management Instance. The management CLIP can use the Segmented Management Instance or routes in the associated

VRF routing table manager (RTM). The management VLAN (routing mode) uses the Fabric Engine routing table or routes in the associated VRF.

ipv6 route bfd (for a VRF)

Configure an IPv6 static route for Bidirectional Forwarding Detection (BFD).

Syntax

- **ipv6 route bfd WORD<0-128> [port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}] [vlan <1-4094>]**
- **no ipv6 route bfd WORD<0-128> [port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}] [vlan <1-4094>]**

Command Parameters

WORD<0-128>

Specifies the BFD static route IPv6 address.

port

Identifies the slot and port in one of the following formats:

- a single slot and port (slot/port)
- a range of slots and ports (slot/port-slot/port)
- a series of slots and ports (slot/port,slot/port,slot/port)
- all ports on the same slot (slot/all)
- all ports on the switch (all)

vlan

Specifies the VLAN ID for the BFD IPv6 static route.

Command Mode

VRF Router Configuration

Usage Guidelines

This command is available for demonstration purposes only. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

ipv6 route preference protocol (for a VRF)

Specifies the route preference.

Syntax

- **default ipv6 route preference protocol <ebgp | ibgp | ospfv3-extern1 | ospfv3-extern2 | ospfv3-inter | ospfv3-intra | spbm-level1 | static>**
- **ipv6 route preference protocol <ebgp | ibgp | ospfv3-extern1 | ospfv3-extern2 | ospfv3-inter | ospfv3-intra | spbm-level1 | static> <0-255>**

Command Parameters

<ebgp | ibgp | ospfv3-extern1 | ospfv3-extern2 | ospfv3-inter | ospfv3-intra | spbm-level1 | static>

Specifies the protocol type.

<0-255>

Specifies the preference value for the given protocol.

Default

The default varies by protocol:

- ebgp—45
- ibgp—175
- ospfv3-extern1—120
- ospfv3-extern2—125
- ospfv3-inter—25
- ospfv3-intra—20
- spbm-level1—7
- static—5

Command Mode

VRF Router Configuration

ipv6 route static enable (for a VRF)

Enable static routes for a VRF context. If you disable static routes, the system removes all enabled static routes and does not add new static routes.

Syntax

- **default ipv6 route static enable**
- **ipv6 route static enable**
- **no ipv6 route static enable**

Default

The default is enabled.

Command Mode

VRF Router Configuration

Usage Guidelines

Static routes for the management OOB, if supported, and management VLAN must use the Segmented Management Instance. For more information, see *Fabric Engine User Guide*. The management CLIP can use the Segmented Management Instance or routes in the associated VRF routing table manager (RTM).

ipv6 source-route (for VRF)

Enables IPv6 source routing globally.

Syntax

- **default ipv6 source-route**
- **ipv6 source-route**
- **no ipv6 source-route**

Default

Disabled

Command Mode

VRF Router Configuration

ipvpn

Create an IP Virtual Private Network (VPN) instance on the Virtual Routing and Forwarding (VRF).

Syntax

- **default ipvpn**
- **ipvpn**
- **ipvpn enable**
- **no ipvpn**

Command Parameters

enable

Enable IP Virtual Private Network (VPN) on the Virtual Routing and Forwarding (VRF).

Default

The default is disabled.

Command Mode

VRF Router Configuration

isis accept (for a VRF)

Configure an Intermediate-System-to-Intermediate-System (IS-IS) accept policy instance to apply to all routes from all Backbone Edge Bridges (BEBs) for a Virtual Routing and Forwarding (VRF) instance.

Syntax

- **isis accept i-sid <0-16777215>**
- **isis accept i-sid <0-16777215> enable**
- **isis accept i-sid <0-16777215> route-map WORD<1-64>**
- **isis accept isid-list WORD<1-32>**
- **isis accept isid-list WORD<1-32> enable**
- **isis accept isid-list WORD<1-32> route-map WORD<1-64>**
- **isis accept route-map WORD<1-64>**
- **no isis accept i-sid <0-16777215>**
- **no isis accept i-sid <0-16777215> enable**
- **no isis accept i-sid <0-16777215> route-map**
- **no isis accept isid-list WORD<1-32>**
- **no isis accept isid-list WORD<1-32> enable**
- **no isis accept isid-list WORD<1-32> route-map**
- **no isis accept route-map**

Command Parameters

enable

Enables the IS-IS accept policy.

i-sid <0-16777215>

Specifies a service instance identifier (I-SID) number representing a local or remote Layer 3 VSN. The number 0 represents the GRT.

isid-list WORD <1-32>

Specifies a list of I-SID numbers representing local or remote Layer 3 VSNs.

route-map WORD<1-64>

Specifies an IS-IS route policy.

Default

The default is disabled.

Command Mode

VRF Router Configuration

isis accept adv-rtr (for a VRF)

Configure an Intermediate-System-to-Intermediate-System (IS-IS) accept policy instance to apply to all routes for a specific Backbone Edge Bridge (BEB) for a Virtual Routing and Forwarding (VRF) instance.

Syntax

- **isis accept adv-rtr <x.xx.xx>**
- **isis accept adv-rtr <x.xx.xx> enable**
- **isis accept adv-rtr <x.xx.xx> i-sid <0-16777215>**
- **isis accept adv-rtr <x.xx.xx> i-sid <0-16777215> enable**
- **isis accept adv-rtr <x.xx.xx> i-sid <0-16777215> route-map WORD<1-64>**
- **isis accept adv-rtr <x.xx.xx> isid-list WORD<1-32>**
- **isis accept adv-rtr <x.xx.xx> isid-list WORD<1-32> enable**
- **isis accept adv-rtr <x.xx.xx> isid-list WORD<1-32> route-map WORD<1-64>**
- **isis accept adv-rtr <x.xx.xx> route-map WORD<1-64>**
- **no isis accept adv-rtr <x.xx.xx>**
- **no isis accept adv-rtr <x.xx.xx> enable**
- **no isis accept adv-rtr <x.xx.xx> i-sid <0-16777215>**
- **no isis accept adv-rtr <x.xx.xx> i-sid <0-16777215> enable**
- **no isis accept adv-rtr <x.xx.xx> i-sid <0-16777215> route-map**
- **no isis accept adv-rtr <x.xx.xx> isid-list WORD<1-32>**
- **no isis accept adv-rtr <x.xx.xx> isid-list WORD<1-32> enable**
- **no isis accept adv-rtr <x.xx.xx> isid-list WORD<1-32> route-map**
- **no isis accept adv-rtr <x.xx.xx> route-map**

Command Parameters

adv-rtr <x.xx.xx>

Specifies a specific advertising BEB for the IS-IS accept policy. The x.xx.xx variable specifies an SPBM nickname.

enable

Enables the IS-IS accept policy.

i-sid <0-16777215>

Configures the service instance identifier (I-SID) to which the IS-IS accept policy applies. The number 0 represents the GRT.

isid-list WORD <1-32>

Configures a list of I-SIDs to which the IS-IS accept policy applies.

route-map WORD<1-64>

Specifies an IS-IS route policy.

Default

The default is disabled.

Command Mode

VRF Router Configuration

isis multi-area ip redistribute routed-multicast

Enables IS-IS Multi-area SPB IPv4 routed multicast redistribution for the specific Virtual Router Forwarding (VRF) instance on the switch.

Syntax

- **default isis multi-area ip redistribute routed-multicast**
- **default isis multi-area ip redistribute routed-multicast [enable]**
- **default isis multi-area ip redistribute routed-multicast [home-to-remote]**
- **default isis multi-area ip redistribute routed-multicast [home-to-remote] [enable]**
- **default isis multi-area ip redistribute routed-multicast [home-to-remote] [route-map]**
- **default isis multi-area ip redistribute routed-multicast [remote-to-home]**
- **default isis multi-area ip redistribute routed-multicast [remote-to-home] [enable]**
- **default isis multi-area ip redistribute routed-multicast [remote-to-home] [route-map]**
- **default isis multi-area ip redistribute routed-multicast [route-map]**
- **isis multi-area ip redistribute routed-multicast**
- **isis multi-area ip redistribute routed-multicast [enable]**
- **isis multi-area ip redistribute routed-multicast [home-to-remote]**

- **isis multi-area ip redistribute routed-multicast [home-to-remote] [enable]**
- **isis multi-area ip redistribute routed-multicast [home-to-remote] [route-map WORD<1-64>]**
- **isis multi-area ip redistribute routed-multicast [remote-to-home]**
- **isis multi-area ip redistribute routed-multicast [remote-to-home] [enable]**
- **isis multi-area ip redistribute routed-multicast [remote-to-home] [route-map WORD<1-64>]**
- **isis multi-area ip redistribute routed-multicast [route-map WORD<1-64>]**
- **no isis multi-area ip redistribute routed-multicast**
- **no isis multi-area ip redistribute routed-multicast [enable]**
- **no isis multi-area ip redistribute routed-multicast [home-to-remote]**
- **no isis multi-area ip redistribute routed-multicast [home-to-remote] [enable]**
- **no isis multi-area ip redistribute routed-multicast [home-to-remote] [route-map]**
- **no isis multi-area ip redistribute routed-multicast [remote-to-home]**
- **no isis multi-area ip redistribute routed-multicast [remote-to-home] [enable]**
- **no isis multi-area ip redistribute routed-multicast [remote-to-home] [route-map]**
- **no isis multi-area ip redistribute routed-multicast [route-map]**

Command Parameters

enable

Enables the IS-IS Multi-area SPB IPv4 routed multicast redistribution.

home-to-remote

Specifies the redistribution configuration for home to remote direction.

remote-to-home

Specifies the redistribution configuration for remote to home direction.

route-map

Specifies the Multi-area SPB IPv4 redistribution route policy.

Default

The default is disabled.

Command Mode

VRF Router Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

isis multi-area ip redistribute unicast

Enables IS-IS Multi-area SPB IPv4 unicast redistribution for the specific Virtual Router Forwarding (VRF) instance on the switch.

Syntax

- **default isis multi-area ip redistribute unicast [enable] [home-to-remote] [remote-to-home] [route-map]**
- **isis multi-area ip redistribute unicast [delete-tags] [enable] [home-to-remote] [remote-to-home] [route-map WORD<1-64>]**
- **no isis multi-area ip redistribute unicast [delete-tags] [enable] [home-to-remote] [remote-to-home] [route-map>]**

Command Parameters

delete-tags

Disables the transmission of route tags in Multi-area SPB. Use this parameter if platforms do not correctly calculate the TLV length in TLV 135. By default, route tags are transported in Multi-area SPB.

enable

Enables the IS-IS Multi-area SPB IPv4 unicast redistribution.

home-to-remote

Specifies the redistribution configuration for home to remote direction.

remote-to-home

Specifies the redistribution configuration for remote to home direction.

route-map

Specifies the Multi-area SPB IPv4 redistribution route policy.

Default

The default is disabled.

Command Mode

VRF Router Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

isis multi-area ipv6 redistribute unicast

Enables IS-IS Multi-area SPB IPv6 unicast redistribution for the specific Virtual Router Forwarding (VRF) instance on the switch.

Syntax

- **default isis multi-area ipv6 redistribute unicast**
- **default isis multi-area ipv6 redistribute unicast [enable]**
- **default isis multi-area ipv6 redistribute unicast [home-to-remote]**
- **default isis multi-area ipv6 redistribute unicast [home-to-remote] [enable]**
- **default isis multi-area ipv6 redistribute unicast [home-to-remote] [route-map]**
- **default isis multi-area ipv6 redistribute unicast [remote-to-home]**
- **default isis multi-area ipv6 redistribute unicast [remote-to-home] [enable]**
- **default isis multi-area ipv6 redistribute unicast [remote-to-home] [route-map]**
- **default isis multi-area ipv6 redistribute unicast [route-map]**
- **isis multi-area ipv6 redistribute unicast**
- **isis multi-area ipv6 redistribute unicast [enable]**
- **isis multi-area ipv6 redistribute unicast [home-to-remote]**
- **isis multi-area ipv6 redistribute unicast [home-to-remote] [enable]**
- **isis multi-area ipv6 redistribute unicast [home-to-remote] [route-map WORD<1-64>]**
- **isis multi-area ipv6 redistribute unicast [remote-to-home]**
- **isis multi-area ipv6 redistribute unicast [remote-to-home] [enable]**
- **isis multi-area ipv6 redistribute unicast [remote-to-home] [route-map WORD<1-64>]**
- **isis multi-area ipv6 redistribute unicast [route-map WORD<1-64>]**
- **no isis multi-area ipv6 redistribute unicast**
- **no isis multi-area ipv6 redistribute unicast [enable]**
- **no isis multi-area ipv6 redistribute unicast [home-to-remote]**
- **no isis multi-area ipv6 redistribute unicast [home-to-remote] [enable]**
- **no isis multi-area ipv6 redistribute unicast [home-to-remote] [route-map]**

- **no isis multi-area ipv6 redistribute unicast [remote-to-home]**
- **no isis multi-area ipv6 redistribute unicast [remote-to-home] [enable]**
- **no isis multi-area ipv6 redistribute unicast [remote-to-home] [route-map]**
- **no isis multi-area ipv6 redistribute unicast [route-map]**

Command Parameters

enable

Enables the IS-IS Multi-area SPB IPv6 unicast redistribution.

home-to-remote

Specifies the redistribution configuration for home to remote direction.

remote-to-home

Specifies the redistribution configuration for remote to home direction.

route-map

Specifies the Multi-area SPB IPv6 redistribution route policy.

Default

The default is disabled.

Command Mode

VRF Router Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

isis redistribute bgp

Identify routes on the local switch to be announced into the Shortest Path Bridging MAC (SPBM) network.

Syntax

- **default isis redistribute bgp [enable] [metric] [metric-type] [route-map] [subnets]**
- **isis redistribute bgp [enable] [metric <0-65535>] [metric-type <external | internal>] [route-map WORD<0-64] [subnets <allow | suppress>] [tag <1-4294967295>]**
- **no isis redistribute bgp [enable] [metric] [metric-type] [route-map] [subnets] [tag]**

Command Parameters

enable

Enables Border Gateway Protocol (BGP) route redistribution.

metric <0-65535>

Specifies the metric for the redistributed route.Use a value that is consistent with the destination protocol. The default is 1.

metrictype <external | internal>

Specifies the metric type. Specifies a type 1 or a type 2 metric. For metric type 1, the cost of the external routes is equal to the sum of all internal costs and the external cost. For metric type 2, the cost of the external routes is equal to the external cost alone. The default is internal.

routemap WORD<0-64>

Configures the route policy to apply to redistributed routes. Specifies a name.

subnets <allow | suppress>

Indicates whether the subnets are advertised individually or aggregated to their classful subnet. Choose allow to advertise the subnets individually with the learned or configured mask of the subnet. The default is allow.

tag <1-4294967295>

Apply a tag to routes that BGP redistribute to IS-IS. You can then configure router filtering to prevent tagged IS-IS routes from being redistributed back to BGP.

Default

By default, redistribution is disabled.

Command Mode

VRF Router Configuration

Usage Guidelines



Caution

To use IS-IS Route Tagging on GRT IS-IS routes, you must also configure the metric-type as external. If you want to use IS-IS tags on GRT as internal routes, all Fabric nodes must be above a minimum software version. Any switch in the SPB Fabric that runs earlier software versions triggers an exception if you use metric type internal. To ensure this does not occur, if you attempt to configure a tag and the metric-type is not external, the switch reminds you to upgrade the software on all devices. You must ensure all devices in the network run the minimum required software.

For more information, see *Fabric Engine User Guide*.

isis redistribute direct

Identify routes on the local switch to be announced into the Shortest Path Bridging MAC (SPBM) network.

Syntax

- **default isis redistribute direct [enable] [metric] [metric-type] [route-map] [subnets]**
- **isis redistribute direct [enable] [metric <0-65535>] [metric-type <external | internal>] [route-map WORD<0-64] [subnets <allow | suppress>]**
- **no isis redistribute direct [enable] [metric] [metric-type] [route-map] [subnets]**

Command Parameters

enable

Enables route redistribution.

metric <0-65535>

Configures the metric (cost) to apply to redistributed routes. The default is 1.

metric-type <external | internal>

Configures the type of route to import into the protocol. The default is internal.

route-map WORD<0-64>

Configures the route policy to apply to redistributed routes. Specifies a name.

subnets <allow | suppress>

Indicates whether the subnets are advertised individually or aggregated to their classful subnet. Choose allow to advertise the subnets individually with the learned or configured mask of the subnet. The default is allow.

Default

By default, redistribution is disabled.

Command Mode

VRF Router Configuration

Usage Guidelines

If you use this command, configured secondary IP subnets are always redistributed unless you configure a filtering route-map with redistribution.

isis redistribute ospf

Identify routes on the local switch to be announced into the Shortest Path Bridging MAC (SPBM) network.

Syntax

- **default isis redistribute ospf [enable] [metric] [metric-type] [route-map] [subnets]**
- **isis redistribute ospf [enable] [metric <0-65535>] [metric-type <external | internal>] [route-map WORD<0-64] [subnets <allow | suppress>] [tag <1-4294967295>]**
- **no isis redistribute ospf [enable] [metric] [metric-type] [route-map] [subnets] [tag]**

Command Parameters

enable

Enables route redistribution.

metric <0-65535>

Configures the metric (cost) to apply to redistributed routes. The default is 1.

metric-type <external | internal>

Configures the type of route to import into the protocol. The default is internal.

routemap WORD<0-64>

Configures the route policy to apply to redistributed routes. Specifies a name.

subnets <allow | suppress>

Indicates whether the subnets are advertised individually or aggregated to their classful subnet. Choose allow to advertise the subnets individually with the learned or configured mask of the subnet. The default is allow.

tag <1-4294967295>

Apply a tag to routes that OSPF redistribute to IS-IS. You can then configure router filtering to prevent tagged IS-IS routes from being redistributed back to OSPF.

Default

By default, redistribution is disabled.

Command Mode

VRF Router Configuration

Usage Guidelines



Caution

To use IS-IS Route Tagging on GRT IS-IS routes, you must also configure the metric-type as external. If you want to use IS-IS tags on GRT as internal routes, all Fabric nodes must be above a minimum software version. Any switch in the SPB Fabric that runs earlier software versions triggers an exception if you use metric type internal. To ensure this does not occur, if you attempt to configure a tag and the metric-type is not external, the switch reminds you to upgrade the software on all devices. You must ensure all devices in the network run the minimum required software.

For more information, see *Fabric Engine User Guide*.

isis redistribute rip

Identify routes on the local switch to be announced into the Shortest Path Bridging MAC (SPBM) network.

Syntax

- **default isis redistribute rip [enable] [metric] [metric-type] [route-map] [subnets]**
- **isis redistribute rip [enable] [metric <0-65535>] [metric-type <external | internal>] [route-map WORD<0-64] [subnets <allow | suppress>]**
- **no isis redistribute rip [enable] [metric] [metric-type] [route-map] [subnets]**

Command Parameters

enable

Enables route redistribution.

metric <0-65535>

Configures the metric (cost) to apply to redistributed routes. The default is 1.

metric-type <external | internal>

Configures the type of route to import into the protocol. The default is internal.

routemap WORD<0-64>

Configures the route policy to apply to redistributed routes. Specifies a name.

subnets <allow | supress>

Indicates whether the subnets are advertised individually or aggregated to their classful subnet. Choose allow to advertise the subnets individually with the learned or configured mask of the subnet. The default is allow.

Default

By default, redistribution is disabled.

Command Mode

VRF Router Configuration

isis redistribute static

Identify routes on the local switch to be announced into the Shortest Path Bridging MAC (SPBM) network.

Syntax

- **default isis redistribute static [enable] [metric] [metric-type] [route-map] [subnets]**
- **isis redistribute static [enable] [metric <0-65535>] [metric-type <external | internal>] [route-map WORD<0-64] [subnets <allow | suppress>]**
- **no isis redistribute static [enable] [metric] [metric-type] [route-map] [subnets]**

Command Parameters

enable

Enables route redistribution.

metric <0-65535>

Configures the metric (cost) to apply to redistributed routes. The default is 1.

metric-type <external | internal>

Configures the type of route to import into the protocol. The default is internal.

route-map WORD<0-64>

Configures the route policy to apply to redistributed routes. Specifies a name.

subnets <allow | suppress>

Indicates whether the subnets are advertised individually or aggregated to their classful subnet. Choose allow to advertise the subnets individually with the learned or configured mask of the subnet. The default is allow.

Default

By default, redistribution is disabled.

Command Mode

VRF Router Configuration

mvpn enable

Enables Layer 3 VSN IP multicast over Fabric Connect for a specific VRF.

Syntax

- **default mvpn enable**
- **mvpn enable**
- **no mvpn enable**

Default

The default is disabled.

Command Mode

VRF Router Configuration

mvpn fwd-cache-timeout

Configures the timeout value on the VRF.

Syntax

- **default mvpn fwd-cache-timeout**
- **mvpn fwd-cache-timeout <10-432000>**
- **no mvpn fwd-cache-timeout**

Command Parameters

<10-432000>

Specifies the timeout value. The default is 210 seconds.

Default

The default is 210 seconds.

Command Mode

VRF Router Configuration

route-map (for a VRF)

Configure and enable a route policy so that the switch can control routes that certain packets can take.

Syntax

- **default route-map WORD<1-64> <1-65535>**
- **no route-map WORD<1-64> <1-65535>**
- **route-map WORD<1-64> <1-65535> [permit | deny]**

Command Parameters

<1-65535>

Specifies the sequence number for the route policy.

<permit|deny>

Permit or deny the route. The default is permit.

WORD<1-64>

Specifies the policy name.

Default

None

Command Mode

VRF Router Configuration

sd-wan-local-breakout

Specifies if Auto-sense manages the VRF after it detects an ExtremeCloud SD-WAN peer.

Syntax

- **no sd-wan-local-breakout**
- **sd-wan-local-breakout**

Default

The default is disabled.

Command Mode

VRF Router Configuration

Usage Guidelines

Using the **no** option with this command disables Local Breakout on the VRF and also removes all BGP and RIP configuration previously applied by Auto-sense.

segmented

Segments a traditional VRF into three access segments:

- Trusted
- Unrestricted
- Untrusted

Syntax

- **no segmented**
- **segmented**

Default

The default is disabled (not segmented).

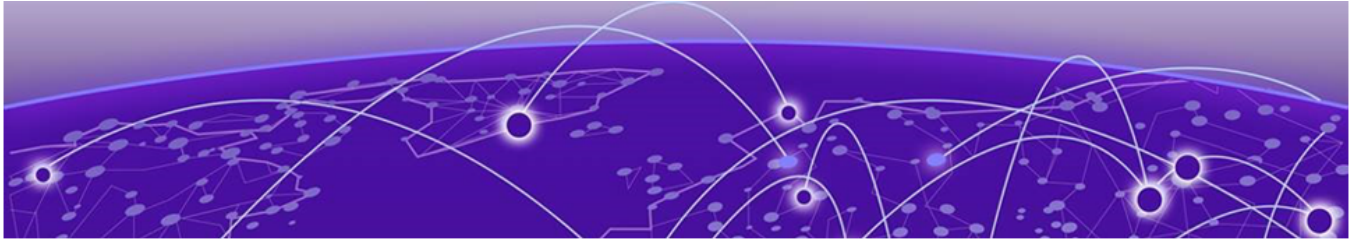
Command Mode

VRF Router Configuration

Usage Guidelines

If you enable Segmented VRF on an existing configured VRF, the routing interfaces associated with the VRF automatically become trusted interfaces.

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.



VRRP Router Configuration

The following topics document commands available in VRRP Router Configuration mode of the command line interface (CLI).

ipv6 send-trap enable

Configure Virtual Router Redundancy Protocol (VRRP) notification control.

Syntax

- **default ipv6 send-trap enable**
- **ipv6 send-trap enable**
- **no ipv6 send-trap enable**

Default

Generation of SNMP traps for VRRP events is enabled.

Command Mode

VRRP Router Configuration

ping-virtual-address

Ping a virtual address to test the connection.

Syntax

- **default ping-virtual-address**
- **default ping-virtual-address enable**
- **default ping-virtual-address enable vrf WORD<1-16>**
- **no ping-virtual-address**
- **no ping-virtual-address enable**
- **no ping-virtual-address enable vrf WORD<1-16>**
- **ping-virtual-address**
- **ping-virtual-address enable**
- **ping-virtual-address enable vrf WORD<1-16>**

Command Parameters

enable

Enables the virtual address ping.

vrf WORD <1-16>

Specifies the virtual routing and forwarding (VRF) name from 1-16 characters.

Default

None

Command Mode

VRRP Router Configuration

send-trap

Configure Virtual Router Redundancy Protocol (VRRP) notification control.

Syntax

- **default send-trap**
- **default send-trap enable**
- **default send-trap enable vrf WORD<1-16>**
- **no send-trap**
- **no send-trap enable**
- **no send-trap enable vrf WORD<1-16>**
- **send-trap**
- **send-trap enable**
- **send-trap enable vrf WORD<1-16>**

Command Parameters

enable

Enable a trap for VRRP events.

vrf WORD<1-16>

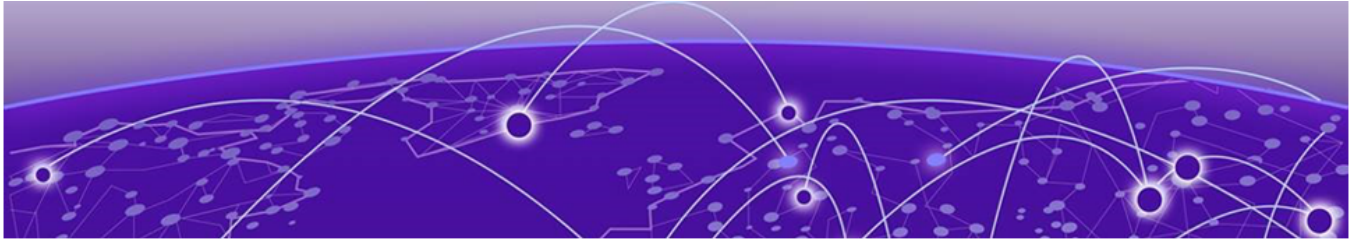
Specifies the VRF name.

Default

Generation of SNMP traps for VRRP events is enabled.

Command Mode

VRRP Router Configuration



VXLAN Configuration

The following topics document commands available in VXLAN Configuration mode of the command line interface (CLI).

c-vid (for a VXLAN Gateway mlt)

Associate VLANs in an MLT list to the specified VNID instance.

Syntax

- **c-vid <1-4094> mlt <1-4094>**
- **no c-vid <1-4094> mlt <1-4094>**

Command Parameters

<1-4094> mlt <1-4094>

Specifies a value that uniquely identifies the customer VLAN ID and MLTs of this ELAN end point.

Default

None

Command Mode

VXLAN Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

c-vid (for a VXLAN Gateway port)

Associate VLANs in a port list to the specified VNID instance.

Syntax

- **c-vid <1-4094> port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **no c-vid <1-4094> port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

<1-4094> port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Specifies a value that uniquely identifies the customer VLAN ID and ports of this ELAN end point.

Default

None

Command Mode

VXLAN Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

untagged-traffic (for a VXLAN Gateway mlt)

Specify the MLT in this VNID instance that will support untagged traffic.

Syntax

- **no untagged-traffic mlt <1-4094>**
- **untagged-traffic mlt <1-4094>**

Command Parameters

mlt <1-4094>

Specifies the MLTs that support untagged traffic.

Default

None

Command Mode

VXLAN Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

untagged-traffic (for a VXLAN Gateway port)

Specify the ports in this VNID instance that will support untagged traffic.

Syntax

- **no untagged-traffic port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**
- **untagged-traffic port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}**

Command Parameters

port {slot/port[/sub-port][-slot/port[/sub-port]][,...][slot/all][all]}

Specifies the ports that support untagged traffic.

Default

None

Command Mode

VXLAN Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.

vtep (association)

Associate VTEPs to the specified VNID instance.

Syntax

- **no vtep <1-255>**
- **vtep <1-255>**

Command Parameters

<1-255>

Lists the remote VTEP destinations to associate with the specified VNID.

Default

None

Command Mode

VXLAN Configuration

Usage Guidelines

This command does not apply to all hardware platforms. For more information about feature support, see *Fabric Engine and VOSS Feature Matrix*.