



ExtremeXOS Quick Guide

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Preface

Text Conventions

The following tables list text conventions that are used throughout this guide.

Table 1: Notice Icons






Icon	Notice Type	Alerts you to...
	General Notice	Helpful tips, tricks, notices for using the product.
	Note	Important features or instructions.
	Caution	Risk of personal injury, system damage, or loss of data.
	Warning	Risk of severe personal injury.
	New	This command or section is new for this release.

Table 2: Text Conventions

Convention	Description
Screen displays	This typeface indicates command syntax, or represents information as it appears on the screen.
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 with brackets, such as [Return] 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]
Words in <i>italicized type</i>	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.

Terminology

When features, functionality, or operation is specific to a switch family, the family name is used. Explanations about features and operations that are the same across all product families simply refer to the product as the “switch.”

Providing Feedback to Us

We are always striving to improve our documentation and help you work better, so we want to hear from you! We welcome all feedback but especially want to know about:

- Content errors or confusing or conflicting information.
- Ideas for improvements to our documentation so you can find the information you need faster.
- Broken links or usability issues.

If you would like to provide feedback to the Extreme Networks Information Development team about this document, please contact us using our short [online feedback form](#). You can also email us directly at internalinfodev@extremenetworks.com.

Getting Help

If you require assistance, contact Extreme Networks Global Technical Assistance Center using one of the following methods:

Web	www.extremenetworks.com/support
Phone	1-800-872-8440 (toll-free in U.S. and Canada) or 1-603-952-5000 For the Extreme Networks support phone number in your country: www.extremenetworks.com/support/contact
Email	support@extremenetworks.com To expedite your message, enter the product name or model number in the subject line.

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

- Your Extreme Networks service contract number
- A description of the failure
- A description of any action(s) already taken to resolve the problem (for example, changing mode switches or rebooting the unit)
- The serial and revision numbers of all involved Extreme Networks products in the network
- A description of your network environment (such as layout, cable type, other relevant environmental information)
- Network load and frame size 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 previous Return Material Authorization (RMA) numbers

1 EXOS Switch Basics

Resources
Connecting to a Switch
Using the CLI
Port Numbering

Resources

This guide serves as a job aid. A list of other guides can be found in [the following table](#):

Table 3: Most Used Guides

Guide Name	Description	Location
Hardware Installation Guides	<ul style="list-style-type: none">• How to install the hardware.• Technical specs on the gear (such as electrical power requirements and heat generated).	http://documentation.extremenetworks.com
ExtremeXOS Command Reference	Documents the syntax of every command and every option.	http://documentation.extremenetworks.com/exos_commands/
ExtremeXOS User Guide	<ul style="list-style-type: none">• Explains the technologies and concepts behind them.• An appendix explains what software features are supported at each license level.• Regarded as the most useful manual.	http://documentation.extremenetworks.com/exos/

Table 3: Most Used Guides (continued)

Guide Name	Description	Location
Release Notes	<ul style="list-style-type: none"> Documents new features and hardware. Explains how to upgrade software. Has the engineering limits for that release of code (such as how many IPv6 routes can be learned by the switch running that version of code). Bugs that have been fixed and bugs that Extreme knows about. Regarded as the second most useful manual. 	www.extremenetworks.com/support/release-notes
Hardware/Software Compatibility and Recommendation Matrices	Provides information about the minimum version of Extreme Networks® software required to support Extreme Networks hardware, and pluggable interfaces such as SFP, XENPAK, and XFP optical modules.	http://documentation.extremenetworks.com/hw_sw_compatibility/

Connecting to a Switch

This procedure describes how to connect to a switch.



Note

Do not use hardware flow control. The Extreme switch does not use it and does not assert CTS.

- 1 Use a DB9 male null-modem (laplink) cable.
- 2 Set the PC serial port to 9600-n-8-1 with either XON/XOFF or no flow control.

Using the CLI

These are basic techniques for using and navigating the CLI:

- Default login: `admin` with no password.
- Use up/down arrow keys to scroll through the command history.
- Use left/right arrow keys to edit a command.
- Use `?` to see what commands are available next.
- Use `[Tab]` to complete a command or to see what commands are available next.
- Commands can be abbreviated as long as the abbreviation is unique.

- Commands always start from the root level.
- ExtremeXOS does not change command levels. The # at the start of the line indicates a comment follows (usually only seen in configuration files).

Note

Alternatively, you can use Chalet, a web-based user interface for setting up and viewing information about a switch. Chalet removes the need to know and remember commands in a CLI environment. For Chalet documentation, see <http://documentation.extremenetworks.com/chalet>

Port Numbering

In standalone switches (not stacked, not in a chassis), ports are identified by their number, such as 1, 2, 3, 4 and so on.

When switches are stacked or for ports in a chassis, ports are identified by `module:port`, such as 1:1, 2:24 and so on.

You can use lists of ports separated by commas: 1, 17, 23 or 1:1, 2:27, 3:23.

You can use port ranges: 1-12 or 4:4-4:14. In the latter case, this also works: 4:4-14. You can also mix the lists and ranges: 1-4, 23 or 4:4-14, 5:7.

2 System-Level Components

Software

Loading New Software

Loading New Bootrom Code

Software

ExtremeXOS switches store two versions of code in non-volatile RAM. The two versions are called Primary and Secondary, but that does not mean that Primary is tried first and if it fails to work then Secondary is tried. Primary and Secondary are just names. The `show switch` command lets you see what versions of software are loaded into the switch, version the switch is running on (Image Booted), and what version will be loaded the next time the switch boots (Image Selected).

```
X460-24p.10 # show switch
SysName:          X460-24p
SysLocation:
SysContact:       support@extremenetworks.com, +1 888 257 3000
System MAC:       00:04:96:51:FE:E2
System Type:      X460-24p

SysHealth check:  Enabled (Normal)
Recovery Mode:    All
System Watchdog:  Enabled

Current Time:     Thu Sep  4 00:57:18 2014
Timezone:         [Auto DST Disabled] GMT Offset: 0 minutes, name is UTC.
Boot Time:        Wed Sep  3 20:07:11 2014
Boot Count:       402
Next Reboot:      None scheduled
System UpTime:    4 hours 50 minutes 7 seconds

Current State:    OPERATIONAL
Image Selected:   primary
Image Booted:  primary
Primary ver:      15.7.1.4
Secondary ver:    15.7.1.5

Config Selected:  ssh-privatekey.cfg
Config Booted:    ssh-privatekey.cfg
                  ssh-privatekey.cfg Created by ExtremeXOS version
15.7.1.5
                  219131 bytes saved on Mon Jul 14 23:03:08 2014
```

Loading New Software

ExtremeXOS does not let you replace your booted version. So if you booted on the secondary image, you can only load new code into the primary image slot. ExtremeXOS handles the slot selection for you automatically.

Set up a TFTP server with the new software and then load it onto the switch using this command:

```
download image tftp server IP address image name vr vr-default
```

Example: `download image 192.168.0.0 summitX-12.6.1.3.xos vr vr-default`



Note

Unless you are actually using the management port, you must include **vr vr-default** at the end of the command.

Loading New Bootrom Code

On very rare occasions, you might need to load new bootrom code onto the switch before you run new software. Check the Release Notes to see if your current bootrom code is compatible. Only download a new bootrom if it is required.

- 1 To download a new bootrom, run this command:

```
download bootrom 192.168.0.0 pmon_summit1-1.0.5.6.xtr vr vr-default
```

- 2 Select the next image to be booted using either of these commands, depending on which partition you want to boot to:

```
use image primary
```

```
use image secondary
```

- 3 Reboot using the `reboot` command.

3 Common Hardware Commands

Command	Description
show switch	Shows the type of system, the current date and time, the timezone, when the switch was booted, which configuration file was booted, and which file will be used at the next boot.
show power	Shows information about your power supplies.
show fans	Shows information about your fans.
show version	Show the serial numbers of your hardware equipment.
show odometers	Shows the total service time (in days) for a piece of hardware.
show license	Shows the license level.
ls	Lists the files stored in the directory.
cp	Copies a file.
mv	Renames a file.
rm	Deletes a file.



Note

EXOS runs on a LINUX kernel, and the file system commands are similar to LINUX.

Example: Serial number for a switch

```
Switch      : 800190-00-02 0634G-00406 Rev 2.0 BootROM: 1.0.5.5   IMG:
12.5.2.6
XGM2-1     : N/A           N/A           Rev 0.0

Image      : ExtremeXOS version 12.5.2.6 v1252b6 by release-manager
            on Tue Mar 1 17:38:45 PST 2011
BootROM    : 1.0.5.5
```

Example: Total number of days a switch has been in service

```
Field Replaceable Units                Service  First Recorded
                                        Days    Start Date
-----
Switch      : X450e-48p                 493    Sep-20-2006
```

4 Managing Configurations

Show Configuration Commands
Changing the CLI Paging
Save Configuraton Commands
Backing Up Config Files on a TFTP Server
Uploading Config Files to a TFTP Server
Resetting a Switch to the Factory Defaults

Show Configuration Commands

These commands let you view configuration settings.

Command	Description
<code>show config</code>	Shows the currently running configuration.
<code>show config detail</code>	The default configuration settings are suppressed. This command lets you see these settings.
<code>show config <i>module</i></code>	Shows the configuration for a particular module, such as VLAN, IP, EAPS, OSPF, and so on.

Example: Show OSPF configuration

```
show config ospf
```

Changing the CLI Paging

By default, the CLI shows you a page of 25 lines at a time and then waits for you to press a key to continue. You can turn off the page-by-page display when you want to view larger amounts of data, for example, when you have set your terminal program to capture the output to a log file.

- 1 To turn off the page-by-page display, run this command:

```
disable clipaging
```

- 2 To turn the paging feature back on, run this command:

```
enable clipaging
```

Save Configuraton Commands

Command	Description
<code>save config</code>	Writes the current config to whatever file name is specified in “Config selected”.
<code>save config filename</code>	Writes the current config to a new file name, and then asks if you want to make the new file the default database by returning this message: Do you want to select this file for booting?



Note

Do not add the .cfg extension to the file name, ExtremeXOS automatically adds the extension for you.

Example: Save the configuration to a new file name

```
#save config test
Do you want to save configuration to test.cfg? (y/N) Yes
Saving configuration on master ..... done!
Configuration saved to test.cfg successfully.
```

```
The current selected default configuration database to boot up the system
(primary.cfg) is different than the one just saved (test.cfg).
Do you want to make test.cfg the default database? (y/N) No
Default configuration database selection cancelled.
```

Backing Up Config Files on a TFTP Server

You can back up config files to or from a TFTP server.

Command	Description
<code>tftp put tftp address vr vr-default config file</code>	Writes a file to a TFTP server.
<code>tftp get tftp address vr vr-default config file</code>	Copies a file from a TFTP server.

Example:

```
tftp put 192.168.1.1 vr vr-default test.cfg
```



Note

You do not specify the .cfg extension when saving files, but you must specify .cfg when using TFTP.

Uploading Config Files to a TFTP Server

You can copy a configuration from one switch to other switches by uploading the configuration file from the TFTP server and letting configuration happen automatically.

ExtremeXOS config files are stored as XML, which can be hard for us humans to read. ExtremeXOS and Ridgeline identify normal ASCII files with an extension of `.xsf`.

- To upload the config in ASCII format, run this command:

```
upload configuration tftp address remote name vr vr-default
```

Example:

```
upload configuration 192.168.1.1 newsript.xsf vr vr-default
```



Note

Because there is no download configuration command, use `tftp get` to copy an `.xsf` file back down to the switch.

Resetting a Switch to the Factory Defaults

You can reset the configuration of a switch to the factory defaults using one of the following commands. Neither command affects the license levels or the stacking mode of a switch.

Command	Description
<code>unconfigure switch</code>	Resets the configuration back to factory defaults except for the odometer, clock, and user accounts and passwords.
<code>unconfigure switch all</code>	Resets the configuration back to factory defaults, including user accounts and passwords.

5 Using Ports

Configuring Port, Speed, and Duplex
Enabling and Disabling Ports
Show Port Configuration Commands
Show VLAN/Port Membership
Show Port Utilization
Monitoring QoS Behavior
Enabling and Disabling Link Aggregation
Using LACP with Link Aggregation

Configuring Port, Speed, and Duplex

These commands let you specify the port, speed, and duplex settings.

Examples: Possible configurations of port speed and duplex settings

```
config port 1 auto off speed 100 duplex half  
  
config port 1:1-1:5 auto off speed 1000 duplex full  
  
config port 22 auto on
```

Enabling and Disabling Ports

These commands let you enable and disable ports.

Examples:

```
enable port 1  
  
disable port 1:1-1:5
```

Show Port Configuration Commands

Command	Description
<code>show port config</code>	Shows the port configuration.
<code>show port config no-refresh</code>	The no-refresh keyword shows you the screen once and exits. Otherwise, ExtremeXOS continues to update the display.

Examples:

```
show port 1:1-1:3 config no-refresh
```

```
show port 3,4,9-12 config no-refresh
```

Port Configuration

Port	Virtual router	Port State	Link State	Auto Neg	Speed Cfg	Actual	Duplex Cfg	Actual	Flow Cntrl	Load Master	Media Pri	Red
3	VR-Default	E	R	ON	AUTO		AUTO				UTP	
4	VR-Default	E	R	ON	AUTO		AUTO				UTP	
9	VR-Default	E	R	ON	AUTO		AUTO				UTP	
10	VR-Default	E	R	ON	AUTO		AUTO				UTP	
11	VR-Default	E	R	ON	AUTO		AUTO				UTP	
12	VR-Default	E	R	ON	AUTO		AUTO				UTP	

```
=====
> indicates Port Display Name truncated past 8 characters
Link State: A-Active R-Ready NP- Port not present L-Loopback
Port State: D-Disabled, E-Enabled
Media: !-Unsupported Optic Module
Media Red: * - use "show port info detail" for redundant media type
=====
```

Show VLAN/Port Membership

The `show port` command lets you view port membership details.

Example:

```
show port 1 info detail
```

Show Port Utilization

The `show port utilization` command lets you view a variety of utilization information on a port.

Examples:

```
show port utilization
```

```
show port 1-3 utilization bandwidth
```

```
show port 3:4,3:7 utilization packets
```

```
show port 17 utilization bytes
```



Note

The **no-refresh** option is not supported with this command.

Monitoring QoS Behavior

This command lets you view the QoS behavior for a port.

Example:

```
show port 1 qosmonitor no-refresh
```



Note

You can only monitor one port from each SummitStack or BD8K module at a time.

Enabling and Disabling Link Aggregation

These commands let you enable and disable link aggregation. Link Aggregation (LAG) is the standard industry term for what Cisco calls EtherChannel and Avaya calls MultiLinkTrunking.

Command	Description
<code>enable sharing master port grouping port list</code>	Enables sharing.
<code>disable sharing master port</code>	Disables sharing.

Examples: Enabling link aggregation sharing

```
enable sharing 1 grouping 1-2
enable sharing 5:3 grouping 5:3-5:4, 6:3-6:4

enable sharing 1
```

Using LACP with Link Aggregation

The Link Aggregation Control Protocol (LACP) brings several advantages to Link Aggregation, some of which include:

- Much better visibility into the LAG partner switch.
- Add and delete ports without tearing down the whole LAG.
- LAGs recover from port failures faster with LACP.
- Can only be added to a LAG when the LAG is built.
- If you create a LAG without LACP and later decide you want to add it, you have to tear down the LAG and then rebuild it using LACP.

To use LACP with a LAG, simply add the **lACP** keyword at the end of the enable sharing command.

Examples:

```
enable sharing 1 grouping 1-2 lacp
```

```
enable sharing 5:3 grouping 5:3-5:4, 6:3-6:4 lacp
```



Note

LACP must be enabled on both ends before the LAG will come up. If LACP is enabled on one end and not the other, the ports on the LACP will never be operational. So either both ends are enabled or neither are.

6 Using VLANs

Creating a VLAN
Port Tagging and VLAN
Show VLAN Commands
Show FDB Commands

ExtremeXOS is very VLAN-centric. Unlike port-based operating systems, most of the configuration takes place at the VLAN level. VLANs are created, then given IP addresses, ports, 802.1Q tag values, and QoS settings. In short, the VLAN must be created first and then configured.

Once the VLAN is created, you refer to it directly by name when you give it an IP address, add ports to it, etc. In fact, the VLAN name is mandatory and (in most cases), but the **vlan** keyword is optional.

Creating a VLAN

A newly created VLAN has no member ports, is untagged, and uses protocol filter any until you configure it otherwise. In ExtremeXOS, VLANs are usually given descriptive names like “data” or “voice” or “wireless” instead of “vlan2100”.

Examples:

```
create vlan Data  
  
create vlan Voice
```

Port Tagging and VLAN

In ExtremeXOS, there are tagged ports and untagged ports. A tagged port will send and receive 802.1Q tagged packets to or from a specific VLAN. An untagged port will send untagged traffic to or from a specific VLAN.

You can choose from one of the following options:

- **Untagged Ports** — Because there’s no way to distinguish between VLANs when using untagged traffic, a port can be assigned as an untagged port to only one VLAN at a time. If you want untagged traffic to go to a different VLAN, you have to delete the port from the old VLAN before you can add it to the new one as an untagged port. If you do not specify whether the port should be added as tagged or untagged, *untagged* is assumed.
- **Tagged Ports** — Because traffic can be distinguished based on the 802.1Q tag value, a port can be assigned as tagged to multiple VLANs at a time. The 802.1Q tag value assigned to the VLAN determines which tag value is used.
- **Mixing Tagged and Untagged Traffic** — ExtremeXOS fully supports mixing tagged and untagged traffic. A port can be an untagged member of one VLAN and a tagged member of several other VLANs simultaneously.

Examples:

```
#add untagged ports to a VLAN
config Data add port 1-12
```

```
#add tagged ports on module 1 to a stacked switch or chassis
config Data add port 2:45-48 tag
```

Assigning an IP Address to a VLAN

You can use dotted decimal subnets or CIDR notation when specifying subnets. If no subnet mask is specified, the “natural mask” is assumed.

Example: # dotted decimal subnet notation

```
config vlan Data ipaddress 10.1.10.1 255.255.255.0
```

Example: # CIDR subnet syntax and abbreviations

```
conf Voice ipa 10.1.20.1/24
```

Assigning an 802.1Q Tag value to the VLAN

To assign the 802.1Q tag value to the VLAN, follow the syntax of this example:

```
config Data tag 10
```

About Assigning a QoS Profile to a VLAN

Fully explaining Quality of Service (QoS) is out of scope for this document, but is discussed in depth in the *ExtremeXOS User Guide*. However, one thing to note is that when SummitStack switches are actually stacked together, QP7 (802.1p bit value of 6) is reserved by the stack for stacking control traffic. You will not be able to use QP7 in your stacks.

QoS Profiles QP1 and QP8 are always available. QP2 – QP7 must be created before they can be used.

Example:

```
create qos QP6
config Voice qosprofile QP6
```

Show VLAN Commands

Command	Description
<code>show vlan</code>	Shows you most of what you need to know regarding all of your VLANs, including IP addresses, the VLAN ID (802.1Q tag), how many ports are in the VLAN, and a wealth of other information shown with a series of flags.
<code>show vlan <i>vlan name</i></code>	Shows more detailed information on a specific VLAN. Because the vlan keyword is usually optional, you can just use <code>show <i>vlan name</i></code> .

Example:

This example shows that the “Voice” vlan is configured to route (IP Forwarding Enabled), has OSPF enabled, and is protected by an EAPS ring.

```

-----
Name          VID  Protocol Addr          Flags          Proto  Ports  Virtual
Active       router
/Total
-----
data          11   192.168.11.100 /24  f-----o-----P----- ANY    0 /18  VR-
Default
Default      1    -----
Default
ecv          3999 -----C----- ANY    0 /2   VR-
Default
Mgmt        4095 ----- ANY    0 /1   VR-Mgmt
ridge       31   192.168.31.100 /24  f-----o-----P----- ANY    0 /2   VR-
Default
voice       21   192.168.21.100 /24  f-----o-----P----- ANY    0 /2   VR-
Default
wireless    41   -----P----- ANY    0 /8   VR-
Default
-----
-
Flags : (B) BFD Enabled, (c) 802.1ad customer VLAN, (C) EAPS Control VLAN,
        (d) NetLogin Dynamically created VLAN, (D) VLAN Admin Disabled,
        (E) ESRP Enabled, (f) IP Forwarding Enabled,
        (F) Learning Disabled, (i) ISIS Enabled, (I) Inter-Switch Connection
VLAN for MLAG,
        (L) Loopback Enabled, (l) MPLS Enabled, (m) IPmc Forwarding Enabled,
        (M) Translation Member VLAN or Subscriber VLAN,
        (n) IP Multinetting Enabled, (N) Network Login VLAN, (o) OSPF Enabled,
        (O) Flooding Disabled, (p) PIM Enabled, (P) EAPS protected VLAN,
        (r) RIP Enabled, (R) Sub-VLAN IP Range Configured,
        (s) Sub-VLAN, (S) Super-VLAN, (t) Translation VLAN or Network VLAN,
        (T) Member of STP Domain, (V) VPLS Enabled, (v) VRRP Enabled, (W)
VPWS Enabled

Total number of VLAN(s) : 7

```

Show FDB Commands

The following commands are commonly used for performing FDB (forwarding database) operations.

Command	Description
<code>show fdb</code>	Shows information for the entire L2 database.
<code>show fdb [vlan] <i>vlan name</i></code>	Shows the FDB for one VLAN.
<code>show fdb ports <i>port list</i></code>	Shows the FDB for a set of ports.
<code>show fdb <i>mac_address</i></code>	Shows information on a particular MAC.
<code>clear fdb</code>	Clears the forwarding database.

**Note**

You can specify ports, VLANs, and particular MAC addresses when clearing.

7 IP Routing

Show IP Routing Commands
Enabling Routing
Configuring Static and Default IP Routes
Performing OSPF Operations
Configuring VRRP
Turning On SNTP
Enabling Web Access
Configuring SNMP

Show IP Routing Commands

The following commands are commonly used for performing IP routing operations.

Command	Description
<code>show iproute</code>	Shows the IP route table. <code>iproute</code> is all one word in ExtremeXOS.
<code>show ipconfig</code>	Shows the IP interfaces on the switch. <code>ipconfig</code> is all one word in ExtremeXOS.
<code>show iparp</code> <code>show iparp vlan name</code> <code>show iparp ipaddress</code> <code>show iparp macaddress</code>	Shows the IP ARP cache. <code>iparp</code> is all one word in ExtremeXOS.
<code>clear iparp</code> <code>clear iparp vlan name</code> <code>clear iparp ipaddress</code>	Clears the IP ARP cache.

Enabling Routing

In ExtremeXOS, you must do two things before you route to or from a VLAN:

- Give the VLAN an IP address.
- Enable IP forwarding.

If you only give the VLAN an IP address, you can ping the interface, Telnet to it, point your web browser at it, but the switch will not route on that VLAN.

Just because you can ping a VLAN does not mean that VLAN has IP forwarding enabled. An ExtremeXOS switch will respond to a ping to any of its IP addresses regardless of the IP forwarding state.

- 1 To turn on routing on a VLAN:
`enable ipforwarding [vlan] vlan name`

- 2 To turn on ipforwarding on all of the VLANs at once:

```
enable ipforwarding
```



Note

If you enable IP forwarding and then later add a VLAN, IP forwarding will not be enabled on the new VLAN. You must add an IP address and then turn on IP forwarding for the VLAN.

Configuring Static and Default IP Routes

Command	Description
<code>config iproute add <i>subnet/mask next hop gateway</i></code>	Configures a static IP route.
<code>config iproute add default <i>next hop gateway</i></code>	Configures a default IP route.

Example: Configure static IP route:

```
config iproute add 10.1.8.x/24 10.1.10.1
```

Example: Configure default IP route

```
config iproute add default 10.1.1.1
```

Performing OSPF Operations

The following commands are commonly used for performing OSPF operations.

- To set the OSPF routerid, OSPF must be disabled before you perform these steps:

- Configure the OSPF router ID:

```
config ospf routerid router id
config ospf routerid 1.1.1.1
```

- Enable OSPF:

```
enable ospf
```

- To create an OSPF area:

```
create ospf area area id
```

- To set the OSPF priority:

```
config ospf [vlan] vlan name priority 0-255
```

The range is 0 through 255, higher numbers win. The default setting is 1. Setting the value to 0 ensures that the router is never selected as the designated router (DR) or backup designated router (BDR).



Note

You need a full core license to change the OSPF priority. An edge license does not support OSPF and an advanced-edge license is only priority 0.

- To turn on OSPF for a VLAN, perform these steps:
 - a Configure the OSPF for a specific VLAN:

```
config ospf add Data area 0.0.0.0
```
 - b Enable OSPF:

```
enable ospf
```
- To turn off OSPF for a VLAN:

```
config ospf delete Data
```
- To see the status of OSPF:

```
show ospf
```
- To look at the ODPF neighbors:

```
show ospf neighbor
```
- To look at the OSPF LSDB:

```
show ospf lsdb
```

Configuring VRRP

If the virtual IP address is the same as a VLAN IP address, the switch will preempt and become the VRRP master for that VRID, regardless of the priority settings.

- To configure a VRRP, follow these steps:
 - a Create a VRRP:

```
create vrrp Data vrid 1  
create vrrp vlan Voice vrid 2
```
 - b Configure the VRRP:

```
config vrrp Data vrid 1 add 10.1.10.1  
config vrrp Voice vrid 2 add 2 10.1.20.1
```
 - c Enable the VRRP:

```
enable vrrp
```
- To view the VRRP configuration:

```
show config vrrp
```
- To view what is actually happening on the VRRP:

```
show vrrp
```

Turning On SNTP

- 1 Configure the primary SNTP:

```
config sntp primary x.x.x.x vr vr-def
```
- 2 Configure the secondary SNTP:

```
config sntp secondary x.x.x.x vr vr-def
```
- 3 Enable the SNTP client:

```
enable sntp-client
```

Examples:

```
configure timezone name EST -300 autodst name EDT
```

```
configure timezone name CST -360 autodst name CDT
```

```
configure timzone name MST -420 autodst name MDT
```

```
configure timzone name PST -480 autodst name PDT
```

Enabling Web Access

To enable web access:

```
enable web http
```

Configuring SNMP

To configure SNMP, follow the syntax of these examples:

Example: Read-only

```
configure snmp add community readonly new_ro
```

Example: Read-write

```
configure snmp add community readwrite new_rw
```

Example: Configure system name

```
config snmp sysname new name
```



Note

This command will change the CLI prompt to match.

8 Advanced Configuration Examples

Configuring EAPS

Turning on a DHCP Server on a Test VLAN

Managing BootP Relay

Mirroring (Span Port)

Configuring EAPS

To configure EAPS, follow the syntax of this example:

```
# assume that the Data and Voice vlans already exist
config Data add ports 49,50 tagged
config Voice add ports 49,50 tagged

create vlan EAPS-Control
config EAPS-Control tag 1000
config EAPS-Control qosprofile qp8
config EAPS-Control add port 49-50 tag
# the VLAN that controls EAPS never ever gets an IP address. Ever.
# the VLAN that controls EAPS never ever has user ports added to it. Ever.

create eaps EAPS-Ring
config EAPS-Ring mode master
# config EAPS-Ring mode transit
* Only one node on the ring is setup as Master, all others are Transit.
config EAPS-Ring primary port 49
config EAPS-Ring secondary port 50
config EAPS-Ring add control EAPS-Control
config EAPS-Ring add protect Data
config EAPS-Ring add protect Voice
enable eaps
enable eaps EAPS-Ring
```

Turning on a DHCP Server on a Test VLAN

To turn on a DHCP server on a test VLAN, follow the syntax of this example:

```
configure vlan test ipaddress 10.1.10.1/24
configure vlan test dhcp-address-range 10.1.10.100 - 10.1.10.150
configure vlan test dhcp-options default-gateway 10.1.10.1
enable dhcp port 1:1-1:12 vlan test
```



Note

The DHCP server is not intended for production use. It only supports a couple of options and it will not handle a heavy load.

Managing BootP Relay

To manage BootP Relay, follow the syntax of these examples:

```
# enable bootprelay for every VLAN
enable bootprelay

#or just for the upstream and downstream VLANs
enable bootprelay vlan data
enable bootprelay vlan backbone

#either way, add the IP address of the DHCP server
config bootprelay add 10.1.30.254
```

To disable BOOTP Relay on one or more VLANs:

```
disable bootprelay vlan data
```

To see the BOOTP Relay configuration and statistics:

```
show bootprelay
```

Mirroring (Span Port)

Up to 128 mirroring filters can be configured with the restriction that a maximum of 16 of these can be configured as VLAN and/or virtual port (port + VLAN) filters.

One monitor port or 1 monitor port list can be configured. A monitor port list may contain up to 16 ports.

To mirror (span port), follow the syntax of these examples:

Example: Mirror all traffic received at 6:5 to the monitor port 3:4

```
enable mirroring to port 3:4
configure mirroring add port 6:5 ingress
```

Example: Mirror all traffic received at port 5 to the monitor port 22

```
enable mirroring to port 22
configure mirroring add port 5 egress
```

Example: Mirror all traffic received on VLAN red to the monitor port 4

```
enable mirroring to port 4
configure mirroring add vlan red
```

Example: Mirror all traffic received on VLAN red, port 5 to the monitor port 4

```
enable mirroring to port 4
configure mirroring add vlan red port 5
```

Example: Mirror all traffic received at port 6:5 to the monitor ports 2:5-2:7

```
enable mirroring to port-list 2:5-2:7 loopback-port 3:1
configure mirroring add port 6:5 ingress
```



Note

Port 3:1 is the loopback port (otherwise unused). A loopback port is required when doing 1:many mirroring.

Example: Turn off mirroring

```
disable mirroring
```