VOSS Release Notes

For VOSS Release 8.9

9037586-00 Rev AB
December 2022

Legal Notice

Extreme Networks, Inc. reserves the right to make changes in specifications and other information contained in this document and its website without prior notice. The reader should in all cases consult representatives of Extreme Networks to determine whether any such changes have been made.

The hardware, firmware, software or any specifications described or referred to in this document are subject to change without notice.

Trademarks

Extreme Networks and the Extreme Networks logo are trademarks or registered trademarks of Extreme Networks, Inc. in the United States and/or other countries.

All other names (including any product names) mentioned in this document are the property of their respective owners and may be trademarks or registered trademarks of their respective companies/owners.

For additional information on Extreme Networks trademarks, see: www.extremenetworks.com/company/legal/trademarks

Open Source Declarations

Some software files have been licensed under certain open source or third-party licenses. End-user license agreements and open source declarations can be found at: https://www.extremenetworks.com/support/policies/open-source-declaration/

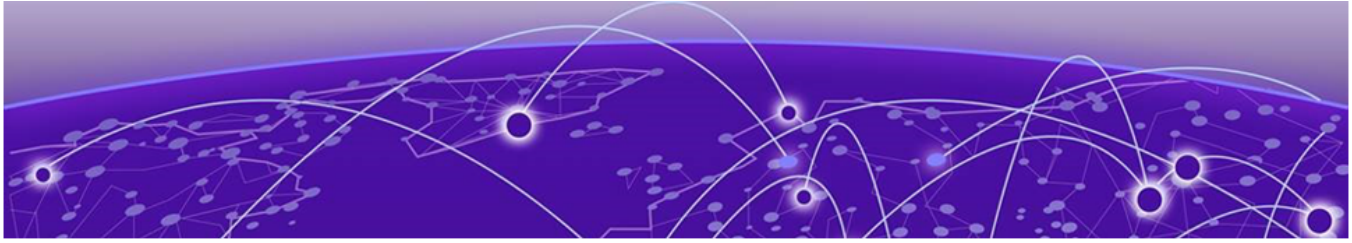
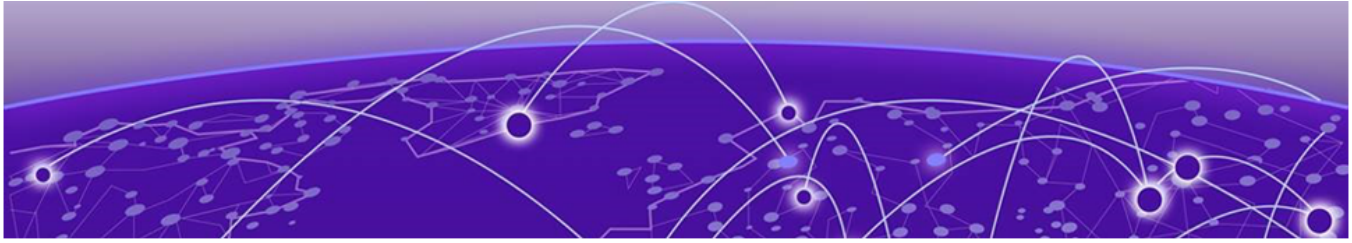


Table of Contents



About this Document

The topics in this section discuss the purpose of this document, the conventions used, ways to provide feedback, additional help, and information regarding other Extreme Networks publications.

Purpose

This document describes important information about this release for supported VSP Operating System Software (VOSS) platforms.

This document includes the following information:

- supported hardware and software
- scaling capabilities
- known issues, including workarounds where appropriate
- known restrictions

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.
	Caution	Risk of personal injury, system damage, or loss of data.
	Warning	Risk of severe personal injury.

Table 2: Text Conventions

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: • Click **OK**. • On the **Tools** menu, choose **Options**.
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.

Table 2: Text Conventions (continued)

Convention	Description
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]`
Separator (>)	A greater than sign (>) shows separation in menu paths. For example, in the Navigation tree, expand the **Configuration** > **Edit** folders.
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 white papers, data sheets, and case studies

Extreme Networks offers product training courses, both online and in person, as well as specialized certifications. For details, visit www.extremenetworks.com/education/.

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.

The Hub

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.

Call GTAC

For immediate support: (800) 998 2408 (toll-free in U.S. and Canada) or 1 (408) 579 2826. For the support phone number in your country, visit: www.extremenetworks.com/support/contact

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

Subscribe to Product Announcements

You can subscribe to email notifications for product and software release announcements, Field Notices, and Vulnerability Notices.

1. Go to The Hub.
2. In the list of categories, expand the **Product Announcements** list.
3. Select a product for which you would like to receive notifications.
4. Select **Subscribe**.
5. To select additional products, return to the **Product Announcements** list and repeat steps 3 and 4.

You can modify your product selections or unsubscribe at any time.

Send Feedback

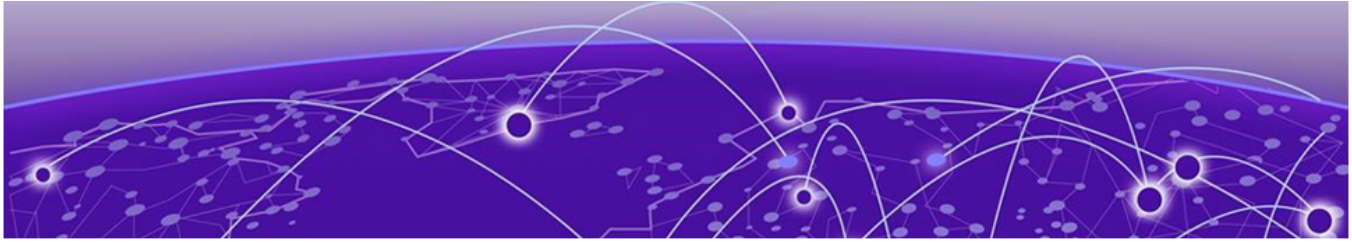
The Information Development team at Extreme Networks has made every effort to ensure that this document is accurate, complete, and easy to use. We strive to improve our documentation to help you in your work, so we want to hear from you. We welcome all feedback, but we especially want to know about:

- Content errors, or confusing or conflicting information.
- Improvements that would help you find relevant information.
- Broken links or usability issues.

To send feedback, do either of the following:

- Access the feedback form at https://www.extremenetworks.com/documentation-feedback/.
- Email us at documentation@extremenetworks.com.

Provide the publication title, part number, and as much detail as possible, including the topic heading and page number if applicable, as well as your suggestions for improvement.



New in this Release

The following platforms support VOSS 8.9:

- ExtremeSwitching VSP 4450 Series
- ExtremeSwitching VSP 4900 Series
- ExtremeSwitching VSP 7200 Series
- ExtremeSwitching VSP 7400 Series
- ExtremeSwitching VSP 8000 Series, which includes the VSP 8200 Series and VSP 8400 Series
- ExtremeSwitching XA1400 Series

For MIB-related changes, see MIB Changes on page 129.

Important

VOSS 8.2 introduced changes to Segmented Management Instance that required migration of legacy management interfaces. Before you upgrade to VOSS 8.2 or later from an earlier release, you must consider your management interface configuration and migration scenario requirements. Back up and save your configuration files off the switch before upgrading to this release.

New Hardware

New Transceivers and Components

For optics compatibility, see the Extreme Optics website.

New Software Features or Enhancements

The following sections describe what is new in this release:

Automatic QoS Priority for MACsec Packets on Intermediate Switches

Note

This feature does not apply to VSP 4450 Series or XA1400 Series.

In certain situations where MACsec encrypted packets traverse intermediate non-MACsec switches, QoS visibility is lost.

This feature uses confidentiality-offset to specify that the first 30 or 50 bytes within the MACsec frame transmit without encryption, thus leaving the 802.1Q VLAN tag p-bits in the clear so that the intermediate switch can differentiate between encrypted traffic. With the 802.1Q p-bits in the clear, internal QoS priority for MACsec packets on intermediate switches can be automatically assigned.

For more information, see *VOSS User Guide*.

Enhanced EDM Help

Enterprise Device Manager (EDM) has been improved with an online Help feature that supplements the existing Help. A Book icon () in the Navigation pane now provides links to the following items:

- Software Release Notes
- Documentation collections
- Hardware and Software Compatibility Matrices
- Documentation for Extreme optics
- RESTCONF Reference Documentation
- The support portal for Software, MIB, Vulnerability/CVE and Field Notices
- GitHub information for GNS3 images

If you have installed an Extreme-branded transceiver in a port, then you can view information about the transceiver by selecting the Vendor Part Number on the **DDI/SFP** tab of the Port pane.

For more information, see *VOSS User Guide*.

Extreme Integrated Application Hosting

Beginning with this release, you can use the following existing CLI commands in Global Configuration mode:

- **virtual-service copy-file WORD<1-256> WORD<1-256>**
- **virtual-service WORD<1-128> console**
- **virtual-service WORD <1-128> install package WORD<1-512>**
- **virtual-service WORD<1-128> uninstall**

Procedures are updated to reflect two mode support. Upgrade procedures use Global Configuration mode only to reduce mode changes.

For more information, see *VOSS User Guide*.

ExtremeCloud IQ Agent Enhancement

The output for the **show application iqagent status** CLI command is updated to provide additional information if IQ Agent is enabled but disconnected. The same information is also available in EDM. This change requires ExtremeCloud IQ Agent 0.5.55 or later.

For more information, see *VOSS CLI Commands Reference*.

Extreme-Dynamic-ACL Scaling Improvements

The Extreme-Dynamic-ACL RADIUS attribute now supports a list parameter. Use the list parameter to contain ports or masks and group similar ACE commands to avoid the packet limitation. Only one list parameter can exist in one Extreme-Dynamic-ACL. The length of an individual ACE command from an Extreme-Dynamic-ACL VSA message is increased from 128 to 255 characters.

For more information, see *VOSS User Guide*.

Extreme-Dynamic-Config Improvements

When you use the RADIUS VSA Extreme-Dynamic-Config to activate DHCP Snooping or Dynamic ARP Inspection, this functionality is now only enabled on the RADIUS returned VLAN/I-SID or, in the case of no RADIUS returned VLAN/I-SID, on the untagged VLAN/I-SID already present on the port. In previous releases, the functionality was enabled on all VLANs assigned to the port and this would typically result in warning messages if the onboarding VLAN, a Private VLAN, was also on the Auto-sense port, because DHCP Snooping and Dynamic ARP Inspection are not supported on Private VLANs.

The requirement to have both DHCP Snooping and Dynamic ARP Inspection enabled across all port VLANs is only required if IP Source Guard is to be also enabled on the same port. There is no change from previous releases if you use the RADIUS VSA Extreme-Dynamic-Config to activate IP Source Guard in addition to DHCP Snooping and Dynamic ARP Inspection.

For more information, see *VOSS User Guide*.

Factory Default Flag More Granular Options

The following list identifies more granular options that enhance the factory default flag behaviors:

- *`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, and SNMP communities. All ports are disabled and assigned to VLAN 1. License files are not removed. 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.
- *`reset-all-files`* — 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.

  Licenses files are removed.

  Note

  You can also use a new **`unconfigure switch`** command to achieve the same behavior.

- *`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.

For more information, see *VOSS User Guide*.

Forced Password Change

In this release, 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.

For more information, see *VOSS User Guide*.

Layer 2 Ping and Layer 2 Traceroute Support for Virtual Node on Multi-area SPB Boundary Node

Multi-area SPB supports Connectivity Fault Management (CFM) on virtual nodes in both home and remote area. For remote area, the boundary nodes respond to Layer 2 ping and Layer 2 traceroute messages that contain the remote area system ID. You must enable CFM on the boundary nodes for the functionality to work.

For more information, see *VOSS User Guide*.

Plug and Play Enhancements

This release introduces the following improvements:

- Automatically adjust IS-IS link metrics based on port / LAG speed, which automatically recalculates the Level 1 metric based on the detected link speed.
- Auto-set vim-speed on 25G VIMs based on inserted transceiver type.

  The switch now automatically configures the Versatile Interface Module (VIM) speed based on the detected optics, which makes it easier to deploy and to maintain the module.

  Auto-set vim-speed is enabled by default.

  Note

  This feature only applies to VSP 4900 Series.

- Auto-channelize QSFP+ and QSFP28 ports when QSA adapter or breakout cable is detected and the port operates in Auto-sense mode.

  Channelization of these ports occurs automatically when you insert one of the following:
  - Quad Small Form-factor Pluggable (QSFP) Plus adapter to Small Form-factor Pluggable (SFP) Plus adapter
  - QSFP28 to SFP28 adapter
  - QSFP28 to 4xSFP28 passive or active breakout cable
  - QSFP+ to 2xSFP+ passive or active breakout cable

  This enhancement means that you no longer have to configure channelization on supported ports.

Together these enhancements make it even easier to deploy and use your switch.

For more information, see *VOSS User Guide*.

Security Enhancements

This release makes the following security-related enhancements:

- Secure syslog automatically reconnects after a connectivity failure

  In previous releases, if connectivity failed, the switch disabled the syslog host automatically and you needed to manually retry the connection. Now, if connectivity fails, the syslog host remains enabled and the switch attempts to reconnect with the syslog server every two minutes.
- SSH rekeying applies to Secure Copy (SCP) and Secure File Transfer Protocol (SFTP).

  Previously, the SSH rekey data limit and time interval applied only to the SSH server and client.
- If the switch operates in Enhanced Secure Mode (ESM), 3des-cbc and blowfish-cbc encryption types are disabled by default.
- A new log message displays if an SSH packet exceeding 32,768 bytes is received, in both ESM and non ESM modes. In previous releases, the switch silently discarded received SSH packets exceeding 32,768 bytes. For information about log messages, see *VOSS Alarms and Logs Reference* .
- In both ESM and non ESM modes, the switch limits the supported algorithms for Remote Access Dial-In User Services (RADIUS) Security (RADsec) proxy to the following ciphers:
  - ECDHE-RSA-AES256-GCM-SHA384
  - ECDHE-RSA-AES128-GCM-SHA256
  - ECDHE-RSA-AES256-SHA384
  - ECDHE-RSA-AES128-SHA256
  - DHE-RSA-AES256-SHA256
  - DHE-RSA-AES256-SHA
  - DHE-RSA-AES128-SHA256
  - DHE-RSA-AES128-SHA

  Note

  For RADSec implementations, as a best practice, use radsecproxy version 1.9.1 or later.
- The switch no longer advertises P-192 and P-224 Transport Layer Security (TLS) elliptic curves; the switch advertises P-256, P-384, and P-521. As a best practice with RADsec, manually force the TLS version 1.2 negotiation by adding to the RADsec proxy server configuration file.
- New warning messages display if the switch operates in Enhanced Secure Mode and uses unsecure algorithms. For information about log messages, see *VOSS Alarms and Logs Reference* .

For more information, see *VOSS User Guide*.

Other Changes

CLI changes

This release includes the following CLI changes that are not related to new features:

- A **`show application openapi`** command is available to display the status of openAPI on switches that support ExtremeCloud IQ.
- The output of the **`show fulltech`** command includes information from the **`show khi performance rx-queue`** command.

- The output of the **show tech** command is aligned with the output of the **show fulltech** command.
- The **show khi cpp port-statistics** command includes a new parameter, *spbm-internal-ports*, to include internal loopback traffic.

EDM Support for mvpn-isid mac-offset Parameter

This release includes the ability to configure the mac-offset parameter for mvpn-isid from EDM. In previous releases, this functionality was available through CLI only. For more information, see *VOSS User Guide*.

Field-Programmable Gate Array (FPGA) Upgrade for VSP 4900 Series

This release adds FPGA CPLD version 1.2.42. You must manually upgrade the version using the **cpld-install fgpa** command. For more information, see *VOSS User Guide*.

Filenames for this Release

Important

Do not use Google Chrome or Safari to download software files. Google Chrome can change the file sizes. Safari changes the .tgz extension to .tar.

After you download the software, calculate and verify the md5 checksum. For more information, see *VOSS User Guide*.

When extracting the software image file, the extraction process appends the software version portion of the extracted filenames to include the final full software version. (For example, extracting **VOSS8400.8.2.5.0.tgz** results in a software file named **VOSS8400.8.2.5.0.GA**.) Ensure that you specify the final full software version (in this case, **8.2.5.0.GA**) when using CLI commands that include the software version, such as activating or removing the software.

The Open Source license text for the switch is included on the product. You can access it by entering the following command in the CLI:

more release/w.x.y.z.GA /release/oss-notice.txt

where *w.x.y.z* represents a specific release number.

The following tables provide the filenames and sizes for this release.

Table 3: VSP 4450 Series Software Filenames and Sizes

Description	File	Size
YANG model	restconf_yang.tgz	506,020 bytes
Logs reference	VOSS4400.8.9.0.0_edoc.tar	64,389,120 bytes
MD5 Checksum files	VOSS4400.8.9.0.0.md5	476 bytes
MIB - supported object names	VOSS4400.8.9.0.0_mib_sup.txt	1,515,197 bytes

Table 3: VSP 4450 Series Software Filenames and Sizes (continued)

Description	File	Size
MIB - objects in the OID compile order	VOSS4400.8.9.0.0_mib.txt	8,201,788 bytes
MIB - zip file of all MIBs	VOSS4400.8.9.0.0_mib.zip	1,225,857 bytes
Open source software - Master copyright file	VOSS4400.8.9.0.0_oss-notice.html	2,785,868 bytes
SHA512 Checksum files	VOSS4400.8.9.0.0.sha512	1,395 bytes
Software image	VOSS4400.8.9.0.0.tgz	123,939,108 bytes
EDM Help files	VOSSv890_HELP_EDM_gzip.zip	5,387,961 bytes

Table 4: VSP 4900 Series Software Filenames and Sizes

Description	File	Size
Fabric IPsec Gateway	FabricIPSecGW_VM_5.2.0.0.ova	4,034,211,840 bytes
YANG model	restconf_yang.tgz	506,020 bytes
Third Party Virtual Machine (TPVM)	TPVM_Ubuntu20.04_04_14Apr2022.qcow2	4,641,982,464 bytes
Logs reference	VOSS4900.8.9.0.0_edoc.tar	64,389,120 bytes
MD5 Checksum files	VOSS4900.8.9.0.0.md5	609 bytes
MIB - supported object names	VOSS4900.8.9.0.0_mib_sup.txt	1,539,562 bytes
MIB - objects in the OID compile order	VOSS4900.8.9.0.0_mib.txt	8,201,788 bytes
MIB - zip file of all MIBs	VOSS4900.8.9.0.0_mib.zip	1,225,857 bytes
Open source software - Master copyright file	VOSS4900.8.9.0.0_oss-notice.html	2,785,868 bytes
SHA512 Checksum files	VOSS4900.8.9.0.0.sha512	1,720 bytes
Software image	VOSS4900.8.9.0.0.tgz	318,819,460 bytes
EDM Help files	VOSSv890_HELP_EDM_gzip.zip	5,387,961 bytes

Table 5: VSP 7200 Series Software Filenames and Sizes

Description	File	Size
YANG model	restconf_yang.tgz	506,020 bytes
Logs reference	VOSS7200.8.9.0.0_edoc.tar	64,389,120 bytes
MD5 Checksum files	VOSS7200.8.9.0.0.md5	476 bytes
MIB - supported object names	VOSS7200.8.9.0.0_mib_sup.txt	1,480,659 bytes
MIB - objects in the OID compile order	VOSS7200.8.9.0.0_mib.txt	8,201,788 bytes
MIB - zip file of all MIBs	VOSS7200.8.9.0.0_mib.zip	1,225,857 bytes
Open source software - Master copyright file	VOSS7200.8.9.0.0_oss-notice.html	2,785,868 bytes

Table 5: VSP 7200 Series Software Filenames and Sizes (continued)

Description	File	Size
SHA512 Checksum files	VOSS7200.8.9.0.0.sha512	1,395 bytes
Software image	VOSS7200.8.9.0.0.tgz	151,501,513 bytes
EDM Help files	VOSSv890_HELP_EDM_gzip.zip	5,387,961 bytes

Table 6: VSP 7400 Series Software Filenames and Sizes

Description	File	Size
Fabric IPsec Gateway	FabricIPSecGW_VM_5.2.0.0.ova	4,034,211,840 bytes
YANG model	restconf_yang.tgz	506,020 bytes
Third Party Virtual Machine (TPVM)	TPVM_Ubuntu20.04_04_14Apr2022.qcow2	4,641,982,464 bytes
Logs reference	VOSS7400.8.9.0.0_edoc.tar	64,389,120 bytes
MD5 Checksum files	VOSS7400.8.9.0.0.md5	609 bytes
MIB - supported object names	VOSS7400.8.9.0.0_mib_sup.txt	1,536,552 bytes
MIB - objects in the OID compile order	VOSS7400.8.9.0.0_mib.txt	8,201,788 bytes
MIB - zip file of all MIBs	VOSS7400.8.9.0.0_mib.zip	1,225,857 bytes
Open source software - Master copyright file	VOSS7400.8.9.0.0_oss-notice.html	2,785,868 bytes
SHA512 Checksum files	VOSS7400.8.9.0.0.sha512	1,720 bytes
Software image	VOSS7400.8.9.0.0.tgz	318,348,028 bytes
EDM Help files	VOSSv890_HELP_EDM_gzip.zip	5,387,961 bytes

Table 7: VSP 8200 Series Software Filenames and Sizes

Description	File	Size
YANG model	restconf_yang.tgz	506,020 bytes
Logs reference	VOSS8200.8.9.0.0_edoc.tar	64,389,120 bytes
MD5 Checksum files	VOSS8200.8.9.0.0.md5	476 bytes
MIB - supported object names	VOSS8200.8.9.0.0_mib_sup.txt	1,480,659 bytes
MIB - objects in the OID compile order	VOSS8200.8.9.0.0_mib.txt	8,201,788 bytes
MIB - zip file of all MIBs	VOSS8200.8.9.0.0_mib.zip	1,225,857 bytes
Open source software - Master copyright file	VOSS8200.8.9.0.0_oss-notice.html	2,785,868 bytes
SHA512 Checksum files	VOSS8200.8.9.0.0.sha512	1,395 bytes

Table 7: VSP 8200 Series Software Filenames and Sizes (continued)

Description	File	Size
Software image	VOSS8200.8.9.0.0.tgz	151,497,812 bytes
EDM Help files	VOSSv890_HELP_EDM_gzip.zip	5,387,961 bytes

Table 8: VSP 8400 Series Software Filenames and Sizes

Description	File	Size
YANG model	restconf_yang.tgz	506,020 bytes
Logs reference	VOSS8400.8.9.0.0_edoc.tar	64,389,120 bytes
MD5 Checksum files	VOSS8400.8.9.0.0.md5	476 bytes
MIB - supported object names	VOSS8400.8.9.0.0_mib_sup.txt	1,480,659 bytes
MIB - objects in the OID compile order	VOSS8400.8.9.0.0_mib.txt	8,201,788 bytes
MIB - zip file of all MIBs	VOSS8400.8.9.0.0_mib.zip	1,225,857 bytes
Open source software - Master copyright file	VOSS8400.8.9.0.0_oss-notice.html	2,785,868 bytes
SHA512 Checksum files	VOSS8400.8.9.0.0.sha512	1,395 bytes
Software image	VOSS8400.8.9.0.0.tgz	224,051,594 bytes
EDM Help files	VOSSv890_HELP_EDM_gzip.zip	5,387,961 bytes

Table 9: XA1400 Series Software Filenames and Sizes

Description	File	Size
Logs reference	VOSS1400.8.9.0.0._edoc.tar	64,389,120 bytes
MD5 Checksum files	VOSS1400.8.9.0.0.md5	424 bytes
MIB - supported object names	VOSS1400.8.9.0.0._mib_sup.txt	1,176,876 bytes
MIB - objects in the OID compile order	VOSS1400.8.9.0.0._mib.txt	8,201,788 bytes
MIB - zip file of all MIBs	VOSS1400.8.9.0.0._mib.zip	1,225,857 bytes
Open source software - Master copyright file	VOSS1400.8.9.0.0._oss-notice.html	2,785,868 bytes
SHA512 Checksum files	VOSS1400.8.9.0.0.sha512	1,247 bytes
Software image	VOSS1400.8.9.0.0.tgz	317,663,537 bytes
EDM Help files	VOSSv890_HELP_EDM_gzip.zip	5,387,961 bytes

Upgrade and Downgrade Considerations

The topics in this section provide information on validated upgrade paths, migration considerations, and compatible software versions.

Note

For VSP 4900 Series, this release adds FPGA CPLD version 1.2.42. You must manually upgrade the version using the **`cpld-install fgpa`** command. For more information, see *VOSS User Guide*.

See the *VOSS User Guide* for detailed image management procedures that includes information about the following specific upgrade considerations:

- IPv6:
  - Notes for systems using IPv6 static neighbors
- Fabric:
  - Pre-upgrade instructions for IS-IS metric type
- Considerations for VLANs or MLTs where the VLAN or MLT name uses all numbers.
- Considerations for digital certificates configured prior to VOSS 8.1.
- Considerations for Fast PoE and Perpetual PoE features configured prior to VOSS 8.1.5.

Upgrade switches using one of the options in the following sections:

- Switches That Will Not Use Zero Touch Deployment on page 21
- Switches That Will Use Zero Touch Deployment on page 21

Validated Upgrade Paths

This section identifies the software releases for which upgrades to this release have been validated.

Validated Upgrade Path for all Switches

Validated upgrade paths:

- 8.8.x to 8.9
- 8.7.x to 8.9
- 8.6.x to 8.9
- 8.5.x to 8.9

Note

For any pre-8.5.0.0 versions, an intermediate upgrade is required.

Switches That Will Not Use Zero Touch Deployment

Switches that will not use Zero Touch Deployment with ExtremeCloud™ IQ or ZTP+ with ExtremeCloud IQ - Site Engine should upgrade to this release by performing these steps:

1. For switches prior to VOSS 8.2, migrate the Management IP address. For more information, see Migration to Segmented Management Instance on page 23 and *VOSS User Guide*.
2. Upgrade to this release from one of the previously described releases, see Validated Upgrade Paths on page 20.
3. Continue to use the previous switch configuration.

Switches That Will Use Zero Touch Deployment

Switches that will use Zero Touch Deployment with ExtremeCloud IQ or ZTP+ with ExtremeCloud IQ - Site Engine should upgrade to this release by performing the following steps:

Important

When you perform these steps, any prior configuration for this switch is lost.

You do not need to complete this procedure for switches that are already managed by ExtremeCloud IQ or ExtremeCloud IQ - Site Engine; use the upgrade functionality available in ExtremeCloud IQ or ExtremeCloud IQ - Site Engine.

1. Upgrade to this release from one of the previously described releases, see Validated Upgrade Paths on page 20.
2. Ensure the switch boots without a configuration file. To ensure the switch boots without a configuration file, perform one of the following actions:
   - Rename existing primary and secondary configuration files. Use the **mv** command to rename the existing configuration files. For example, **mv config.cfg config.cfg.backup**.

     This is the preferred option because it ensures that the primary and secondary files are removed while making a backup of them at the same time. This option also ensures that the switch uses the default config.cfg file for the final configuration after it has successfully onboarded.
   - Delete the existing primary and secondary configuration files. Create a backup of these files before you delete them.
   - Boot from non-existent configuration files. Use the **boot config choice** command to configure the primary and backup configuration files to reference files that do not exist on the switch:

```
boot config choice primary config-file nonexistent1.cfg

boot config choice primary backup-config-file nonexistent2.cfg
```

This option also works, however, after the switch has successfully onboarded, it does not use the default config.cfg file but uses the alternative configuration file name provided instead, which might not be desired.

3. Reboot the switch.

Performing these steps results in a switch with a Zero Touch Deployment configuration with the following characteristics:

- The ssh and sshd boot configuration flags are enabled by default.
- All ports are Private VLAN isolated ports, except on the XA1400 Series.
- VLAN 4048 is created as an *onboarding-vlan* for host-only connectivity for In Band management. On all platforms, except the XA1400 Series, all front panel ports are members of VLAN 4048.
- In Band management is enabled.
- Dynamic Host Configuration Protocol (DHCP) client requests are cycled between In Band and Out of Band ports, except on the XA1400 Series and VSP 4450 Series. XA1400 Series and VSP 4450 Series support In Band management only.
- If the switch resets after the IP address is obtained from the DHCP Server, the entire DHCP process does not need to be repeated. Instead, the switch can directly send the DHCP Request to the DHCP Server for the IP stored in the /intflash/dhcp/dhclient.leases file.
- Out of Band management is enabled, except on the XA1400 Series and VSP 4450 Series. XA1400 Series and VSP 4450 Series support In Band management only.
- All ports are administratively enabled, except on the XA1400 Series. Only Port 1/8 is administratively enabled on the XA1400 Series, which means the administrator must plug in and use only port 1/8 for Zero Touch Deployment on an XA1400 Series.
- IQAgent is enabled by default.
- Zero Touch Provisioning Plus (ZTP+) for ExtremeCloud IQ - Site Engine onboarding is enabled by default.
- Zero Touch Fabric Configuration is initiated.
- After the Zero Touch Fabric establishes successfully, the onboarding VLAN 4048 is automatically assigned to onboarding I-SID 15999999.

After the switch reboots in the Zero Touch Deployment configuration, the DHCP client and ExtremeCloud IQ Agent are enabled. The DHCP client obtains an IP address for the switch, DNS discovery is used to discover a Domain Name Server, and the switch attempts to connect to ExtremeCloud IQ and ExtremeCloud IQ - Site Engine.

All switches, except XA1400 Series, also receive a Zero Touch Fabric Configuration. For more information, see *VOSS User Guide*.

Compatible Fabric IPsec Gateway Versions

Note

This section only applies to VSP 4900 Series and VSP 7400 Series. For more information about feature support, see *Fabric Engine and VOSS Feature Support Matrix*.

The OVA image for the Fabric IPsec Gateway is posted with the image file for each network operating system (NOS) release.

For more information about image files in this release, see Filenames for this Release on page 16. For virtual service upgrade instructions, see *VOSS User Guide*.

Only use the Fabric IPsec Gateway image version that is posted with the NOS release image.

Note

Upgrade the switch software image before you upgrade the Fabric IPsec Gateway image.

Downgrade Considerations

Save a backup copy of your switch configuration before upgrading to new release. New releases contain significant enhancements, which cannot be used in previous software versions. Downgrading to an earlier release will require a compatible configuration file.

For devices running VOSS 8.3, or later, that connect to ExtremeCloud IQ using ExtremeCloud IQ Agent versions 0.4.0 or higher, you cannot downgrade to VOSS 8.2.x and connect to the cloud automatically. After you downgrade to VOSS 8.2.x, you lose connectivity to ExtremeCloud IQ so you must install a VOSS 8.2.x compatible ExtremeCloud IQ Agent version to re-establish connectivity.

Contact support for assistance with installation of the VOSS 8.2.x compatible ExtremeCloud IQ Agent version. For the support phone number in your country, visit: www.extremenetworks.com/support/contact.

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.

For information about how to reinstall ExtremeCloud IQ Agent firmware, beginning with VOSS 8.4.2, see *VOSS User Guide*.

Migration to Segmented Management Instance

Important

VOSS 8.2 introduced changes to Segmented Management Instance that required migration of legacy management interfaces. Before you upgrade to VOSS 8.2 or later from an earlier release, you must consider your management interface configuration and migration scenario requirements. Backup and save your configuration files off the switch before upgrading to this release.

If the switch already runs VOSS 8.2 or later, you can ignore this section.

Management interface access to the switch can be lost if you do not perform the applicable migration scenarios before upgrading to this release. Loss of management access after an upgrade can result in an automatic roll-back to the previous software version.

You must perform a manual software commit after upgrading from VOSS Release 8.1.5.0 or earlier to VOSS 8.2 or later. Management interface access is required to input the `software commit` CLI

command within 10 minutes after the upgrade. If the time expires the system initiates an automatic roll-back to the previous release.

You must ensure the switch runs VOSS 8.1.x before you upgrade to VOSS 8.2 or later to support the **migrate-to-mgmt** functionality.

Note

If the network environment must migrate static IPv6 routes, the switches must run VOSS Release 8.1.2.0 or later before you upgrade to VOSS 8.2 or later.

Not all upgrade paths are validated by Extreme Networks for each new software release. To understand the validated upgrade paths, see Validated Upgrade Paths on page 20.

You must consider the following legacy management interface migration scenarios before you upgrade to VOSS 8.2 or later:

Table 10: Management Interface Migration Scenarios

Mgmt Interface	Mgmt Scenario	Migration Description
DvR leaf	Automatic migration during upgrade.	DvR leaf settings migrate automatically during the software upgrade process. The DvR **inband-mgmt-ip** CLIP automatically becomes the new Segmented Management Instance CLIP. Note: Leaf nodes only support the management CLIP as part of the Global Routing Table (GRT).
OOB	Automatic migration during upgrade.	Out-of-Band management settings migrate automatically during the software upgrade process.

Table 10: Management Interface Migration Scenarios (continued)

Mgmt Interface	Mgmt Scenario	Migration Description
CLIP	Specify a Circuitless IP (CLIP) interface for migration to management interface before you upgrade.	You can use this interface type for CLIP management network routing in a Fabric network or Layer 3 routing network. Use the **migrate-to-mgmt** command in the Loopback Interface Configuration mode of the CLI to specify the CLIP interface for management before starting the software upgrade process. You can designate the IP Shortcut CLIP to migrate to the Management Instance CLIP. After the upgrade, the IS-IS source IP address moves to the Management Instance CLIP. You should configure a new GRT CLIP using a different IP address and assign that as the new IS-IS source IP. Save the configuration before upgrading. Important: Ensure that the management CLIP IP address does not fall into the range of a configured VLAN IP address range as this is not allowed.
VLAN	Specify a VLAN interface for migration to management interface before you upgrade.	You can use this interface type for management of Layer 2 switches or for Zero-Touch onboarding of newly deployed devices. Use the CLIP Management Instance for routed management. Use the **migrate-to-mgmt** command in the VLAN Interface Configuration mode of the CLI to specify the VLAN interface for management before starting the software upgrade process. Important: Choose a VLAN that does not have an IP interface on it. The upgrade process removes the IP configuration and network connectivity can be impacted. Save the configuration before upgrading. The VLAN Management Instance does not route to or from the GRT.

Table 10: Management Interface Migration Scenarios (continued)

Mgmt Interface	Mgmt Scenario	Migration Description
		Bridged management traffic must ingress on the VLAN or I-SID.

For more information about Segmented Management Instance migration, see *VOSS User Guide*.

Segmented Management Instance Migration and DvR

Starting with VOSS Release 8.2, VSP devices can be managed by a CLIP/Loopback IP address that is assigned to a virtual router and forwarder (VRF) that is not in the Global Routing Table (GRT). When you convert a VSP switch from a regular backbone edge bridge (BEB) to a DvR leaf device by setting the DvR leaf boot flag, you must assign the management CLIP to the GRT. If you assign the management CLIP to a VRF, the device will not be reachable after the migration because the management CLIP cannot be migrated.

Real Time Clock

The latest VSP switches have an updated real time clock (RTC) component, which is not compatible with some older software releases. If you have the new hardware, the switch prevents you from downgrading to an unsupported release.

The hardware revision number of the affected products has been updated to reflect this change. For each product in the affected product families, the following table identifies the hardware revisions, and higher, that contain the updated RTC component.

Model	Minimum Hardware Revision
VSP 4450GSX	11
VSP 4450GTX-HT-PWR+	11
VSP 7254XSQ and VSP 7254XTQ	13
VSP 8284XSQ	12
VSP 8404	10
VSP 8404C	12

The minimum versions of software required for proper functioning of the product with the new RTC component are as follows:

- 6.x software baseline – 6.1.6.0
- 7.x or later software baseline – 7.1.0.1

All other earlier software versions do not support the new RTC component.

Post Upgrade Configuration for Zero Touch Fabric Configuration and Dynamic Nickname Assignment

Note

In this section, a Zero Touch Fabric release refers to any of the following: VOSS 8.3, Fabric Engine 8.6, or later releases.

The switch initiates Zero Touch Fabric Configuration if you boot without a configuration file.

To add new Zero Touch Fabric Configuration devices or implement Zero Touch Fabric Configuration on existing devices, the network requires a nickname server and reachability to the DHCP server and, optionally, ExtremeCloud IQ servers or ExtremeCloud IQ - Site Engine. How you implement this depends on if the network is a new deployment, or an existing Fabric network that you upgrade. In a new deployment, you can meet the network requirements with one node, known as a seed node. In an existing network, functions can already exist on different nodes.

For more details on Zero Touch Fabric Configuration, see *VOSS User Guide*.

Important

Not all upgrade paths are validated by Extreme Networks for each new software release. To understand the validated upgrade paths, see Validated Upgrade Paths on page 20.

Network Requirements

The following list identifies the network requirements before you add new Zero Touch Fabric Configuration devices or implement Zero Touch Fabric Configuration on existing devices:

- You must configure a node as the nickname server, if one does not already exist. This node can be anywhere in the SPB Fabric IS-IS area.
- The DHCP server must be reachable by the remote nodes:
  - In an existing network, the DHCP server can be anywhere in the network. If the DHCP server is on a different IP subnet from the onboarding I-SID, configure DHCP Relay functionality on the existing IP interface of VLAN 4048 with I-SID 15999999.
  - If the DHCP server is on the same subnet as the onboarding I-SID, configure the port facing the DHCP server as private-vlan promiscuous, using Private VLAN 4048, if the new DHCP snooping port feature does not have the promiscuous port configured automatically. This VLAN and the Auto-sense onboarding I-SID are created automatically on a newly deployed device.
- In this release, ports send Fabric Connect LLDP TLVs regardless of the Auto-sense configuration, which means these devices can establish adjacencies with other devices that run a Zero Touch Fabric release, and use either Auto-sense or static NNI configuration.

  In an existing network that includes devices that run a version of VOSS earlier than 8.3, you must manually configure the NNI. Because the port running in the earlier release does not send Fabric Connect LLDP TLVs, an adjacency with a Zero Touch Fabric release node does not form automatically.

For Zero Touch Fabric Configuration to work when a new switch that runs a Zero Touch Fabric release, connects to a switch on an existing Fabric, upgrade at least the existing Fabric switches to a Zero Touch Fabric release first.

- Some SPB deployments use Ethertype 0x88a8 but many use 0x8100. Zero Touch Fabric Configuration works with existing networks that use either value as long as the existing switches that connect to the new switches run a Zero Touch Fabric release.

Zero Touch Fabric Configuration Switch

Important

If you deploy a Fabric-capable switch with Auto-sense enabled, the switch interacts with existing switches that support Fabric Attach (FA). If an existing FA Proxy switch does not have FA server connectivity established yet, it will form an FA connectivity to the newly connected VOSS (8.3 or later) or Fabric Engine, switch as it announces itself as an FA server. To avoid unintended FA connectivity, disable Auto-sense using the **no auto-sense enable** command on the relevant ports.

On switches (upgraded existing or newly deployed) where you want to initiate Zero Touch Fabric Configuration, perform the following tasks:

1. Upgrade to a Zero Touch Fabric release, if the device is not a new deployment already running a Zero Touch Fabric release.
2. On upgraded existing switches, ensure the switch boots without a configuration file. The switch joins the network as an end host. To ensure the switch boots without a configuration file, perform one of the following actions:
   - Rename existing primary and secondary configuration files. Use the **mv** command to rename the existing configuration files. For example, **mv config.cfg config.cfg.backup**.

     This is the preferred option because it ensures that the primary and secondary files are removed while making a backup of them at the same time. This option also ensures that the switch uses the default config.cfg file for the final configuration after it has successfully onboarded.
   - Delete the existing primary and secondary configuration files. Create a backup of these files before you delete them.
   - Boot from non-existent configuration files. Use the **boot config choice** command to configure the primary and backup configuration files to reference files that do not exist on the switch:

     ```
     boot config choice primary config-file nonexistent1.cfg

     boot config choice primary backup-config-file nonexistent2.cfg
     ```

     This option also works, however, after the switch has successfully onboarded, it does not use the default config.cfg file but uses the alternative configuration file name provided instead, which might not be desired.

3. The switch creates a Zero Touch Deployment configuration to onboard the switch, including the following Zero Touch Fabric Configuration items:

   Note
   For more details on Zero Touch Deployment, see *VOSS User Guide*.

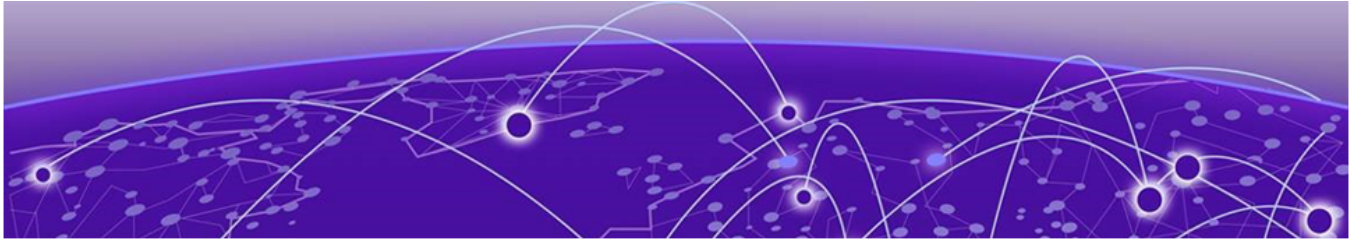
   - Creates private VLAN 4048.
   - Enables SPBM.
   - Creates SPBM instance 1.
   - Creates default backbone VLANs (B-VLAN) (4051 and 4052).
   - Creates manual area 00.1515.fee1.900d.1515.fee1.900d.

     Note
     The B-VLAN and manual area configuration values are not compulsory. This remote switch can attach to a Fabric core that does not match these values because the Auto-sense functionality dynamically learns the B-VLANs and manual area in use in the Fabric core from the connected seed node using LLDP.

   - Creates the onboarding I-SID 15999999.
   - Assigns the onboarding I-SID to private VLAN 4048 and also includes the management VLAN.

     Note
     As a best practice, use the onboarding I-SID for onboarding purposes and, whenever possible, configure a management VLAN or management CLIP on a different I-SID after the onboarding procedures have been successfully completed.

   - Enables Auto-sense on all ports.
   - Configures Auto-sense access ports and Layer 2 trusted Auto-sense ports.
   - Enables IS-IS globally.
   - With Auto-sense, ports on a switch can detect whether they connect to an SPB device, a Fabric Attach (FA) client, FA Proxy, Voice IP devices, or an undefined host, and then make the necessary configuration.
4. If the seed node uses Auto-sense IS-IS Authentication, configure the remote switch to use the same authentication type and key as the seed node.
5. The switch joins the Fabric.
6. The nickname server dynamically assigns an SPBM nickname.
7. After the Zero Touch Fabric establishes successfully, the switch attempts to acquire an IP address on the onboarding VLAN and I-SID using DHCP. When the DHCP client obtains an IP address for the switch, the switch automatically attempts to connect to ExtremeCloud IQ and Extreme Management Center or ExtremeCloud IQ - Site Engine.



Hardware and Software Compatibility

The topics in this section list the software compatibility for hardware platforms.

VSP 4450 Series Hardware

Table 11: Switch models

Part number	Model number	Initial release	Supported new VOSS feature release				
			8.5	8.6	8.7	8.8	8.9
EC4400004-E6	VSP 4450GSX-DC	4.0.50	Y	Y	Y	Y	Y
EC4400A03-E6	VSP 4450GTX-HT-PWR+	4.0.50	Y	Y	Y	Y	Y
EC4400A05-E6	VSP 4450GSX-PWR+	4.0	Y	Y	Y	Y	Y
EC4400A05-E6GS	VSP 4450GSX-PWR+ TAA Compliant	4.0.50	Y	Y	Y	Y	Y

VSP 4450 Series Operational Notes

On a VSP 4450 Series switch, when making the initial connection to the two 10 Gbps SFP+ ports with MACsec-capable PHY (ports 49 and 50), the remote device flaps two times before remaining up due to the MACsec probing done by the VSP 4450 Series switch.

VSP 4900 Series Hardware

Table 12: Switch models

Part number	Model number	Initial release	Supported new VOSS feature release				
			8.5	8.6	8.7	8.8	8.9
VSP4900-48P	VSP4900-48P	8.1	Y	Y	Y	Y	Y
VSP4900-12MXU-12XE	VSP4900-12MXU-12XE	8.1.5	Y	Y	Y	Y	Y
VSP4900-24S	VSP4900-24S	8.1.5	Y	Y	Y	Y	Y
VSP4900-24XE	VSP4900-24XE	8.1.5	Y	Y	Y	Y	Y

Note

Ensure the switch runs, at a minimum, the noted initial software release before you install a VIM.

Table 13: Versatile Interface Modules (VIM)

Part number	Model number	Initial release	Supported new VOSS feature release				
			8.5	8.6	8.7	8.8	8.9
VIM5-4X	VIM5-4X	8.1	Y	Y	Y	Y	Y
VIM5-4XE	VIM5-4XE	8.1	Y	Y	Y	Y	Y
VIM5-2Y	VIM5-2Y	8.1	Y	Y	Y	Y	Y
VIM5-4YE	VIM5-4YE	8.1	Y	Y	Y	Y	Y
VIM5-2Q	VIM5-2Q	8.1	Y	Y	Y	Y	Y
VIM5-4Y	VIM5-4Y	8.1.5	Y	Y	Y	Y	Y

VSP 4900 Series Operational Notes

VSP4900-24S fixed ports operate at 1 Gbps. If you connect a 10 Gbps DAC/SFP+ to a VSP4900-24S 1 Gbps fixed port, the system displays the following error message:

```
10Gb optical module inserted in 1Gb only port nn. Not supported.
```

Although the link successfully comes up, the operational speed shows as 10 Gbps instead of 1 Gbps. This scenario occurs when a 10 Gbps DAC/SFP+ is used to make any of the following connections from a VSP4900-24S 1 Gbps fixed port:

- a VSP4900-24S to VSP4900-24S loopback connection
- a VSP4900-24S connected to another VSP4900-24S
- a VSP4900-24S connected to a VSP 4450GSX

Versatile Interface Module Operational Notes

The following table summarizes the operational capabilities of the various VIMs:

Table 14: VSP 4900 Series VIM Matrix

	VIM5-4X	VIM5-4XE	VIM5-2Y	VIM5-4YE	VIM5-4Y	VIM5-2Q
Number of supported ports for VSP4900-48P and VSP4900-24S	4	4	2	2	2	1
Number of supported ports for VSP4900-24XE and VSP4900-12MXU-12XE	4	4	2	4	4	2
Port speeds	1 Gbps 10 Gbps	1 Gbps 10 Gbps	10 Gbps or 25 Gbps All ports must operate at either 10 Gbps or 25 Gbps (default)	10 Gbps or 25 Gbps All ports must operate at either 10 Gbps or 25 Gbps (default)	10 Gbps or 25 Gbps All ports must operate at either 10 Gbps or 25 Gbps (default)	40 Gbps 10 Gbps (with channelization
PHY present	No	Yes	Yes	Yes	Yes	No
Copper transceiver support (1 Gbps/10 Gbps)	10GBASE-T only	Both	10GBASE-T only	10GBASE-T only	10GBASE-T only	Not applicable
MACsec	Not supported	128/256 bit	Not supported	128/256 bit	Not supported	Not supported
Forward Error Correction (FEC)	Not supported	Not supported	Not supported	Default is Auto-FEC - FEC Auto, CL108, CL91, CL74 and No FEC supported	Not supported	Not supported
1 Gbps Auto-Negotiation	Disabled	Enabled	Not applicable	Not applicable	Not applicable	Not applicable
10 Gbps Auto-Negotiation	Disabled	Disabled	Disabled	Disabled	Disabled	Not applicable
25 Gbps Auto-Negotiation	Not applicable	Not applicable	Disabled	Enabled for DACs Disabled for AOCs, optical transceivers	Disabled	Not applicable

Note:
Auto-Negotiation values are automatically set based on the type of transceiver detected.

VIM5-2Y and VIM5-4Y Operational Notes

Note
VIM5-2Y and VIM5-4Y are in end-of-sale status.

The IEEE 802.3by requirement for 25 G is that any transceiver or DAC 3 meters or longer, requires the use of forward error correction (FEC). Because the VIM5-2Y and VIM5-4Y do not support FEC, note the following considerations for proper operation with these VIMs:

- Supported 25 G optics:
  - PN: 10502 - 25GBASE-SR (FEC-Lite): up to 30 m for OM3, up to 40 m for OM4
- Supported 25 G DACs:
  - 10520 25G SFP28 Cable (1 m)
- You must disable Auto-Negotiation and FEC on any VSP 7400 Series device that is connected to either of these VIMs.

You might experience CRC or link flap errors by using an unsupported 25 G transceiver.

VSP 7200 Series Hardware

Part number	Model number	Initial release	Supported new VOSS feature release				
			8.5	8.6	8.7	8.8	8.9
EC720001F-E6	VSP 7254XSQ DC (front to back airflow)	4.2.1	Y	Y	Y	Y	Y
EC7200A1B-E6 (back-to-front airflow) EC7200A1F-E6 (front-to-back airflow)	VSP 7254XSQ	4.2.1	Y	Y	Y	Y	Y
EC720002F-E6	VSP 7254XTQ DC (Front to back airflow)	4.2.1	Y	Y	Y	Y	Y
EC7200A2B-E6 (back-to-front airflow) EC7200A2F-E6 (front-to-back airflow)	VSP 7254XTQ	4.2.1	Y	Y	Y	Y	Y

Part number	Model number	Initial release	Supported new VOSS feature release				
			8.5	8.6	8.7	8.8	8.9
EC7200A3B-E6 (back-to-front airflow) EC7200A3F-E6 (front-to-back airflow)	VSP 7254XSQ Port Licensed	5.1	Y	Y	Y	Y	Y
EC7200A4B-E6 (back-to-front airflow) EC7200A4F-E6 (front-to-back airflow)	VSP 7254XTQ Port Licensed	5.1	Y	Y	Y	Y	Y

VSP 7200 Series Operational Notes

- The VSP 7254XSQ has a PHYless design, which is typical for Data Center top of rack switches. The benefits of a PHYless design are lower power consumption and lower latency. However, due to the PHYless design, the following transceivers that require electronic dispersion compensation (EDC) for proper operation are not supported:
  - AA1403017-E6: 1-port 10GBASE-LRM SFP+
  - AA1403016-E6: 1-port 10GBase-ZR/ZW SFP+

    The AA1403165 10GBASE-ZR CWDM DDI SFP+ transceiver can be substituted for AA1403016-E6 10GBASE-ZR/ZW SFP+
- Software partitions the switch into two logical slots: Slot 1 and Slot 2.
  - Slot 1: 10 Gbps ports: 1 - 48
  - Slot 2: 40 Gbps ports: 1 - 6
- Channelization is supported on the 40 Gbps QSFP+ ports.
- MACsec support:
  - MACsec is only supported on the VSP 7254XTQ 10 Gbps ports.
  - MACsec is not supported on VSP 7254XSQ 10 Gbps ports
  - MACsec is not supported on VSP 7254XTQ and VSP 7254XSQ 40 Gbps ports whether channelization is enabled or not.
- Port licensing support on the port licensed VSP 7254XSQ fiber switch:
  - 24 ports (Slot 1, ports 25 to 48) out of the 48 1/10 GbE SFP/SFP+ ports require a Port License to be unlocked.
  - two ports (Slot 2, ports 5 and 6) out of the six 40 GbE QSFP+ ports require a Port License to be unlocked.
- Port licensing support on the port licensed VSP 7254XTQ copper switch:
  - 24 ports (Slot 1, ports 25 to 48) out of the 48 100 Mbps/1 GbE/10 GbE RJ-45 ports require a Port License to be unlocked.
  - two ports (Slot 2, ports 5 and 6) out of the six 40 GbE QSFP+ ports require a Port License to be unlocked.

- 1000BASE-T SFP (AA1419043-E6) will only operate at 1 Gbps speeds when used on a VSP 7254XSQ.
- When you use 1 Gigabit Ethernet SFP transceivers on VSP 7254XSQ, the software disables auto-negotiation on the port:
  - If you use 1 Gbps fiber SFP transceivers, the remote end must also have auto-negotiation disabled.
  - If you use 1 Gbps copper SFP transceivers, the remote end must have auto-negotiation enabled. If not, the link will not be established.
- When a port on VSP 7254XSQ is disabled or enabled, or a cable replaced, or the switch rebooted, the remote link can flap twice.
- Enable auto-negotiation to ensure proper operation at 100 Mbps speeds on VSP 7254XTQ:
  - Link instability will be seen if both ends are set to 100 Mbps auto-negotiation disabled and you use a straight through cable.
  - If Link instability is seen when you use a cross-over cable, a port disable or enable can fix the issue.

VSP 7400 Series Hardware

Part number	Model Number	Initial release	Supported new VOSS feature release				
			8.5	8.6	8.7	8.8	8.9
VSP7400-32C (no power supplies or fans) VSP7400-32C-AC-F (front-to-back airflow) VSP7400-32C-AC-R (back-to-front airflow)	VSP 7432CQ	8.0	Y	Y	Y	Y	Y
VSP7400-48Y-8C (no power supplies or fans) VSP7400-48Y-8C-AC-F (front-to-back airflow) VSP7400-48Y-8C-AC-R (back-to-front airflow)	VSP 7400-48Y	8.0.5	Y	Y	Y	Y	Y

VSP 7400 Series Operational Notes

The VSP 7400 Series has a PHYless design. The benefits of a PHYless design are lower power consumption and lower latency. However, due to the PHYless design, the following transceivers that require electronic dispersion compensation (EDC) for proper operation are not supported:

- AA1403017-E6: 1-port 10GBASE-LRM SFP+
- AA1403016-E6: 1-port 10GBase-ZR/ZW SFP+

  The AA1403165 10GBASE-ZR CWDM DDI SFP+ transceiver can be substituted for AA1403016-E6 10GBASE-ZR/ZW SFP+

The following list provides operational notes for VSP 7432CQ.

- Ports 31 and 32 (low) or ports 29, 30, 31, and 32 (high) are reserved for internal use when certain features, including Fabric Connect, are used. For a full list of the features, refer to *VOSS User Guide*.
- The QSFP28 ports support the use of QSFP28 and QSFP+ transceivers:
  - The software detects the transceiver type and sets the port speed as either 100 Gbps for QSFP28 or 40 Gbps for QSFP+.
- Channelization:
  - Channelization is not supported on port 28.
  - Supports 4x10 Gbps when channelization is enabled and QSFP+ transceiver is detected.
  - Supports 4x25 Gbps when channelization is enabled and QSFP28 transceiver is detected.

The following list provides operational notes for VSP 7400-48Y.

- Ports 55 and 56 (low) or ports 53, 54, 55, and 56 (high) are reserved for internal use when certain features, including Fabric Connect, are used. For a full list of the features, refer to *VOSS User Guide*.
- The QSFP28 ports support the use of QSFP28 and QSFP+ transceivers:
  - The software detects the transceiver type and sets the port speed as either 100 Gbps for QSFP28 or 40 Gbps for QSFP+.
- The SFP28 ports support the use of SFP28, SFP, and SFP+ transceivers.
  - The software detects the transceiver type and sets the port speed as either 25 Gbps for SFP28,.1 Gbps for SFP, or 10 Gbps for SFP+.
  - Auto-Negotiation is not supported when a 25 Gbps port operates at 1 Gbps. The following log message displays on the switch: `Auto-Negotiation enabled but not applied to port 1/1 since 1G transceiver is present.`.
- Channelization is not supported. As a result, you cannot use the following optical components:
  - 40 Gbps or 100 Gbps breakout cables
  - QSFP28 to SFP28 Adapter (PN: 10506)

VSP 8000 Series Hardware

Table 15: Switch models

Part number	Model number	Initial release	Supported new VOSS feature release				
			8.5	8.6	8.7	8.8	8.9
EC8200A01-E6 EC8200A01-E6GS	VSP 8284XSQ	4.0	Y	Y	Y	Y	Y
EC8200001-E6	VSP 8284XSQ DC	4.0.50	Y	Y	Y	Y	Y
EC8400001-E6	VSP 8404 DC	4.2.1	Y	Y	Y	Y	Y
EC8400A01-E6 EC8200A01-E6GS	VSP 8404	4.2	Y	Y	Y	Y	Y

Table 15: Switch models (continued)

Part number	Model number	Initial release	Supported new VOSS feature release				
			8.5	8.6	8.7	8.8	8.9
EC8400002-E6	VSP 8404C DC	5.3	Y	Y	Y	Y	Y
EC8400A02-E6 EC8200A02-E6GS	VSP 8404C	5.3	Y	Y	Y	Y	Y

Important

Ensure the switch runs, at a minimum, the noted initial software release before you install an Ethernet Switch Module (ESM).

Table 16: ESMs — VSP 8400 Series only

Part number	Model number	Initial release	Supported new VOSS feature release				
			8.5	8.6	8.7	8.8	8.9
EC8404001-E6 EC8404001-E6GS	8424XS	4.2	Y	Y	Y	Y	Y
EC8404002-E6 EC8404002-E6GS	8424XT	4.2	Y	Y	Y	Y	Y
EC8404003-E6 EC8404003-E6GS	8408QQ	4.2	Y	Y	Y	Y	Y
EC8404005-E6 EC8404005-E6GS	8418XSQ	4.2	Y	Y	Y	Y	Y
EC8404006-E6 EC8404006-E6GS	8418XTQ	5.0	Y	Y	Y	Y	Y
EC8404007-E6 EC8404007-E6GS	8424GS	5.0	Y	Y	Y	Y	Y
EC8404008-E6 EC8404008-E6GS	8424GT	5.0	Y	Y	Y	Y	Y
EC8404009-E6 EC8404009-E6GS	8402CQ Supported in VSP 8404C only	5.3	Y	Y	Y	Y	Y

XA1400 Series Hardware

Part number	Model number	Initial release	Supported new VOSS feature release				
			8.5	8.6	8.7	8.8	8.9
XA1440	ExtremeAccess Platform 1440 (XA1440)	8.0.50	Y	Y	Y	Y	Y
XA1480	ExtremeAccess Platform 1480 (XA1480)	8.0.50	Y	Y	Y	Y	Y

Transceivers

The software allows the use of transceivers and direct attach cables from any vendor, which means that the switch will bring up the port operationally when using any transceiver. Extreme Networks does not provide support for operational issues related to the use of non-Extreme Networks branded transceivers and direct attached cables used in the switches.

To find product descriptions and compatibility information for optical transceivers and components, visit the Extreme Optics website.

Auto-Negotiation

Use auto-negotiation to enable the device to automatically negotiate the best common data rate and duplex mode to use between two auto-negotiation-capable Ethernet devices.

When you use a 1 Gb SFP transceiver on a 10 Gb SFP+ port, ensure that auto-negotiation is enabled. Note, however, the following special considerations:

- If you use 1 Gb SFP transceivers on a VSP 4450 Series switch that is connected to third-party switches, you must have auto-negotiation enabled at all times. This applies to SFP transceivers installed in either 1 Gb SFP ports or 10 Gb SFP+ ports.
- Auto-negotiation is not supported for the VSP 7254XSQ. On the VSP 7254XSQ, if you are using a 1 Gb SFP module, the link can be established only when auto-negotiation is disabled at the remote device. Also note that, because the SFP+ ports on the VSP 7254XSQ support only 1 Gb and 10 Gb speeds, the 1000BASE-T SFP module (part no. AA1419043-E6 or 10070H) can operate only at 1 Gb.
- For 1000BASE-T SFP transceivers, the best practice is to perform custom auto-negotiation at the remote native copper port. This can prevent connections from failing if the speed or duplex negotiation changes.

Forward Error Correction (FEC)

Forward Error Correction (FEC) is a method of obtaining error control in data transmission over an unreliable or noisy channel in which the source (transmitter) encodes the data in a redundant way by using an error correcting code (ECC). This redundancy enables a destination (receiver) to detect a limited number of errors and correct them without requiring a re-transmission.

For more information about FEC, see *VOSS User Guide*.

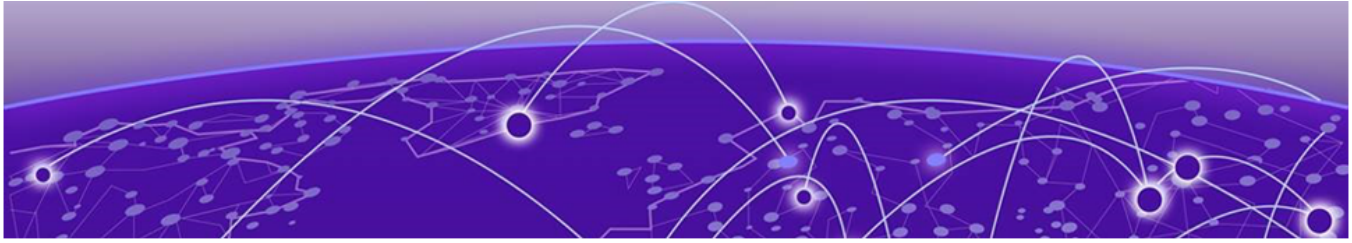
Power Supply Compatibility

You can use certain power supplies in more than one platform.

For more specific information on each power supply, see the following documents:

- *Installing the Virtual Services Platform 4450GTX-HT-PWR+*
- *Installing the Virtual Services Platform 4450GSX-PWR+*
- *VSP 4900 Series Switches: Hardware Installation Guide*
- *Installing the Virtual Services Platform 7200 Series*
- *VSP 7400 Series Switches: Hardware Installation Guide*

- *Installing the Virtual Services Platform 8000 Series*
- *XA1400 Series Switches: Hardware Installation Guide*



Scaling

This section documents scaling capabilities of the VOSS platforms.

The scaling and performance information shown in the following tables is provided for the purpose of assisting with network design. It is recommended that network architects and administrators design and manage networks with an appropriate level of network scaling "head room." The scaling and performance figures provided have been verified using specific network topologies using limited switch configurations. There is no guarantee that the scaling and performance figures shown are applicable to all network topologies and switch configurations and are provided as a realistic estimation only. If you experience scaling and performance characteristics that you feel are sufficiently below what has been documented, contact Extreme Networks technical support for additional assistance.

Note

If your switch uses Advanced Feature Bandwidth Reservation in Full Feature mode, this affects scaling information that is based on the number of available ports. If you enable the boot configuration flag for this feature, remember to deduct the number of reserved ports from the documented scaling maximum. Not all hardware platforms require this feature to provide full feature support. For more information, see *VOSS User Guide*.

Layer 2

Table 17: Layer 2 Maximums

Attribute	Product	Maximum number supported
MAC table size (without SPBM)	VSP 4450 Series	32,000
	VSP 4900 Series	80,000
	VSP 7200 Series	224,000
	VSP 7400 Series	160,000
	VSP 8000 Series	224,000
	XA1400 Series	2,000 for XA1440 4,000 for XA1480
MAC table size (with SPBM)	VSP 4450 Series	16,000
	VSP 4900 Series	40,000
	VSP 7200 Series	112,000
	VSP 7400 Series as Interior Node	80,000
	VSP 7400 Series as Boundary Node	54,000
	VSP 8000 Series	112,000
	XA1400 Series	2,000 for XA1440 4,000 for XA1480
MAC table size (with Multi-area SPB, Redistributed I-SIDs, no local UNI)	VSP 4450 Series	n/a
	VSP 4900 Series	n/a
	VSP 7200 Series	n/a
	VSP 7400 Series	160,000
	VSP 8000 Series	n/a
	XA1400 Series	n/a
Endpoint Tracking MAC addresses per switch	VSP 4450 Series	n/a
	VSP 4900 Series	8,000
	VSP 7200 Series	8,000
	VSP 7400 Series	8,000
	VSP 8000 Series	8,000
	XA1400 Series	n/a

Table 17: Layer 2 Maximums (continued)

Attribute	Product	Maximum number supported
Directed Broadcast interfaces	VSP 4450 Series	n/a
	VSP 4900 Series	200 See Maximum Number of Directed Broadcast Interfaces on page 46.
	VSP 7200 Series	200 See Maximum Number of Directed Broadcast Interfaces on page 46.
	VSP 7400 Series	200 See Maximum Number of Directed Broadcast Interfaces on page 46.
	VSP 8000 Series	200 See Maximum Number of Directed Broadcast Interfaces on page 46.
	XA1400 Series	n/a
Port-based VLANs Note: When you use Flex-UNI functionality, you can use the complete range from 1 to 4096 for port VLAN IDs.	VSP 4450 Series	4,059
	VSP 4900 Series	4,059
	VSP 7200 Series	4,059
	VSP 7400 Series	4,059
	VSP 8000 Series	4,059
	XA1400 Series	500
Private VLANs	VSP 4450 Series	200
	VSP 4900 Series	200
	VSP 7200 Series	200
	VSP 7400 Series	200
	VSP 8000 Series	VSP 8404C = 400 Other VSP 8000 Series platforms = 200
	XA1400 Series	n/a
Protocol-based VLANs (IPv6 only)	VSP 4450 Series	1
	VSP 4900 Series	1
	VSP 7200 Series	1
	VSP 7400 Series	1
	VSP 8000 Series	1
	XA1400 Series	n/a

Table 17: Layer 2 Maximums (continued)

Attribute	Product	Maximum number supported
RSTP instances	VSP 4450 Series	1
	VSP 4900 Series	1
	VSP 7200 Series	1
	VSP 7400 Series	1
	VSP 8000 Series	1
	XA1400 Series	1
MSTP instances	VSP 4450 Series	12
	VSP 4900 Series	12
	VSP 7200 Series	12
	VSP 7400 Series	64
	VSP 8000 Series	12
	XA1400 Series	12
LACP aggregators	VSP 4450 Series	24
	VSP 4900 Series	VSP4900-48P: 52 (48 fixed ports + 4 VIM ports) VSP4900-24S, VSP4900-24XE, VSP4900-12MXU-12XE: 28 (24 fixed + 4 VIM ports)
	VSP 7200 Series	54 (up to 72 with channelization)
	VSP 7400 Series	VSP 7432CQ = 32 (up to 125 with channelization) configured in Full Port mode VSP 7400-48Y = 56 configured in Full Port mode
	VSP 8000 Series	84 (up to 96 with channelization)
	XA1400 Series	8
Ports per LACP aggregator	VSP 4450 Series	8 active
	VSP 4900 Series	8 active
	VSP 7200 Series	8 active
	VSP 7400 Series	8 active
	VSP 8000 Series	8 active
	XA1400 Series	8

Table 17: Layer 2 Maximums (continued)

Attribute	Product	Maximum number supported
MLT groups	VSP 4450 Series	50
	VSP 4900 Series	VSP4900-48P: 52 (48 fixed ports + 4 VIM ports) VSP4900-24S, VSP4900-24XE, VSP4900-12MXU-12XE: 28 (24 fixed + 4 VIM ports)
	VSP 7200 Series	54 (up to 72 with channelization)
	VSP 7400 Series	VSP 7432CQ = 32 (up to 125 with channelization) configured in Full Port mode VSP 7400-48Y = 56 configured in Full Port mode
	VSP 8000 Series	84 (up to 96 with channelization)
	XA1400 Series	8
Ports per MLT group	VSP 4450 Series	8
	VSP 4900 Series	8
	VSP 7200 Series	8
	VSP 7400 Series	8
	VSP 8000 Series	8
	XA1400 Series	8
Link State Tracking (LST) groups	VSP 4450 Series	48
	VSP 4900 Series	48
	VSP 7200 Series	48
	VSP 7400 Series	48
	VSP 8000 Series	48
	XA1400 Series	n/a

Table 17: Layer 2 Maximums (continued)

Attribute	Product	Maximum number supported
Interfaces per LST group	VSP 4450 Series	8 upstream 128 downstream
	VSP 4900 Series	8 upstream 128 downstream
	VSP 7200 Series	8 upstream 128 downstream
	VSP 7400 Series	8 upstream 128 downstream
	VSP 8000 Series	8 upstream 128 downstream
	XA1400 Series	n/a
SLPP VLANs	VSP 4450 Series	128
	VSP 4900 Series	128
	VSP 7200 Series	128
	VSP 7400 Series	500
	VSP 8000 Series	128
	XA1400 Series	128
VLACP interfaces	VSP 4450 Series	50
	VSP 4900 Series	VSP4900-48P: 52 (48 fixed ports + 4 VIM ports) VSP4900-24S, VSP4900-24XE, VSP4900-12MXU-12XE: 28 (24 fixed + 4 VIM ports) VIM5-2Q on VSP4900-12MXU-12XE and VSP4900-24XE with channelization enabled: 32
	VSP 7200 Series	54 (up to 72 with channelization)
	VSP 7400 Series	VSP 7432CQ = 32 (up to 125 with channelization) configured in Full Port mode VSP 7400-48Y = 56 configured in Full Port mode
	VSP 8000 Series	84 (up to 96 with channelization)
	XA1400 Series	8

Table 17: Layer 2 Maximums (continued)

Attribute	Product	Maximum number supported
Microsoft NLB cluster IP interfaces	VSP 4450 Series	n/a
	VSP 4900 Series	200 See Maximum Number of Microsoft NLB Cluster IP Interfaces on page 46.
	VSP 7200 Series	200 See Maximum Number of Microsoft NLB Cluster IP Interfaces on page 46.
	VSP 7400 Series	200 See Maximum Number of Microsoft NLB Cluster IP Interfaces on page 46.
	VSP 8000 Series	200 See Maximum Number of Microsoft NLB Cluster IP Interfaces on page 46.
	XA1400 Series	n/a

Maximum Number of Directed Broadcast Interfaces

The number of Directed Broadcast interfaces must be less than or equal to 200. However, if you configure VLANs with both NLB and Directed Broadcast, you can only scale up to 100 VLANs.

Maximum Number of Microsoft NLB Cluster IP Interfaces

The number of NLB cluster IP interfaces multiplied by the number of configured clusters must be less than or equal to 200. The number of NLB cluster IP interfaces is the key, not the number of VLANs. You can configure 1 VLAN with up to 200 NLB cluster IP interfaces or configure up to 200 VLANs with 1 NLB cluster IP interface per VLAN.

For example: 1 virtual interface per cluster x 200 clusters = 200 or 2 virtual interfaces per cluster x 100 clusters = 200

However, if you configure VLANs with both NLB and Directed Broadcast, you can only scale up to 100 VLANs assuming there is only 1 NLB cluster IP interface per VLAN.

IP Unicast

Table 18: IP Unicast Maximums

Attribute	Product	Maximum number supported
IP interfaces (IPv4 or IPv6 or IPv4+IPv6)	VSP 4450 Series	256
	VSP 4900 Series	500 See IP Interface Maximums for VSP 4900 Series on page 56.
	VSP 7200 Series	505 See IP Interface Maximums for VSP 7200 Series, VSP 8200 Series, and VSP 8400 Series on page 56.
	VSP 7400 Series	1,000 See IP Interface Maximums for VSP 7400 Series on page 56.
	VSP 8000 Series	VSP 8404C = 500 Other VSP 8000 Series platforms = 505 See IP Interface Maximums for VSP 7200 Series, VSP 8200 Series, and VSP 8400 Series on page 56.
	XA1400 Series	500 (IPv4 only)

Table 18: IP Unicast Maximums (continued)

Attribute	Product	Maximum number supported
VRRP interfaces (IPv4 or IPv6)	VSP 4450 Series	64
	VSP 4900 Series	252 See IP Interface Maximums for VSP 4900 Series on page 56.
	VSP 7200 Series	252 See IP Interface Maximums for VSP 7200 Series, VSP 8200 Series, and VSP 8400 Series on page 56.
	VSP 7400 Series	500 per switch 256 per VRF See IP Interface Maximums for VSP 7400 Series on page 56.
	VSP 8000 Series	252 See IP Interface Maximums for VSP 7200 Series, VSP 8200 Series, and VSP 8400 Series on page 56.
	XA1400 Series	64 (IPv4 only)
Routed Split Multi-Link Trunking (RSMLT) interfaces (IPv4 or IPv6 or IPv4+IPv6)	VSP 4450 Series	251
	VSP 4900 Series	251 See IP Interface Maximums for VSP 4900 Series on page 56.
	VSP 7200 Series	251 See IP Interface Maximums for VSP 7200 Series, VSP 8200 Series, and VSP 8400 Series on page 56.
	VSP 7400 Series	499 See IP Interface Maximums for VSP 7400 Series on page 56.
	VSP 8000 Series	251 See IP Interface Maximums for VSP 7200 Series, VSP 8200 Series, and VSP 8400 Series on page 56.
	XA1400 Series	n/a

Table 18: IP Unicast Maximums (continued)

Attribute	Product	Maximum number supported
VRRP interfaces with fast timers (200ms) - IPv4/IPv6	VSP 4450 Series	24
	VSP 4900 Series	24
	VSP 7200 Series	24
	VSP 7400 Series	24
	VSP 8000 Series	24
	XA1400 Series	24
ECMP groups/paths per group	VSP 4450 Series	512/4
	VSP 4900 Series	2,048/8
	VSP 7200 Series	1.024/8
	VSP 7400 Series	2,048/8
	VSP 8000 Series	1.024/8
	XA1400 Series	500/8
OSPF v2/v3 interfaces	VSP 4450 Series	100
	VSP 4900 Series	500
	VSP 7200 Series	500
	VSP 7400 Series	500
	VSP 8000 Series	500
	XA1400 Series	48 (v2 only)
OSPF v2/v3 neighbors (adjacencies)	VSP 4450 Series	100
	VSP 4900 Series	500
	VSP 7200 Series	500
	VSP 7400 Series	500
	VSP 8000 Series	500
	XA1400 Series	24 (v2 only)
OSPF areas	VSP 4450 Series	12 for each VRF 64 for the switch
	VSP 4900 Series	12 for each VRF 80 for the switch
	VSP 7200 Series	12 for each VRF 80 for the switch
	VSP 7400 Series	12 for each VRF 80 for the switch
	VSP 8000 Series	12 for each VRF 80 for the switch
	XA1400 Series	12 for each VRF 64 for each switch

Table 18: IP Unicast Maximums (continued)

Attribute	Product	Maximum number supported
IPv4 ARP table	VSP 4450 Series	6,000
	VSP 4900 Series	32,000 in non-SPB deployments 16,000 in SPB deployments
	VSP 7200 Series	48,000 in non-SPB deployments 32,000 in SPB deployments
	VSP 7400 Series	56,000 non-SPB deployments 40,000 SPB deployments
	VSP 8000 Series	48,000 in non-SPB deployments 32,000 in SPB deployments
	XA1400 Series	2,000 for XA1440 4,000 for XA1480
IPv4 CLIP interfaces	VSP 4450 Series	64
	VSP 4900 Series	64
	VSP 7200 Series	64
	VSP 7400 Series	64
	VSP 8000 Series	64
	XA1400 Series	64
IPv4 RIP interfaces	VSP 4450 Series	200
	VSP 4900 Series	200
	VSP 7200 Series	200
	VSP 7400 Series	200
	VSP 8000 Series	200
	XA1400 Series	200
IPv4 BGP peers	VSP 4450 Series	12
	VSP 4900 Series	256
	VSP 7200 Series	256
	VSP 7400 Series	256
	VSP 8000 Series	256
	XA1400 Series	12

Table 18: IP Unicast Maximums (continued)

Attribute	Product	Maximum number supported
IPv4 VRFs with iBGP	VSP 4450 Series	16
	VSP 4900 Series	16
	VSP 7200 Series	16
	VSP 7400 Series	16
	VSP 8000 Series	16
	XA1400 Series	n/a
IPv4/IPv6 VRF instances For additional information, see VRF Scaling on page 90.	VSP 4450 Series	128 including GRT
	VSP 4900 Series	256 including mgmt VRF and GRT See IP Interface Maximums for VSP 4900 Series on page 56.
	VSP 7200 Series	256 including mgmt VRF and GRT See IP Interface Maximums for VSP 7200 Series, VSP 8200 Series, and VSP 8400 Series on page 56.
	VSP 7400 Series	256 including mgmt VRF and GRT See IP Interface Maximums for VSP 7400 Series on page 56.
	VSP 8000 Series	256 including mgmt VRF and GRT See IP Interface Maximums for VSP 7200 Series, VSP 8200 Series, and VSP 8400 Series on page 56.
	XA1400 Series	24 including GRT

Table 18: IP Unicast Maximums (continued)

Attribute	Product	Maximum number supported
IPv4 static ARP entries	VSP 4450 Series	200 for each VRF 1,000 for the switch
	VSP 4900 Series	2,000 for each VRF 10,000 for the switch
	VSP 7200 Series	2,000 for each VRF 10,000 for the switch
	VSP 7400 Series	2,000 for each VRF 10,000 for the switch
	VSP 8000 Series	2,000 for each VRF 10,000 for the switch
	XA1400 Series	200 for each VRF 1,000 for the switch
IPv4 static routes	VSP 4450 Series	1,000 for each VRF 1,000 for the switch
	VSP 4900 Series	1,000 for each VRF 5,000 for the switch
	VSP 7200 Series	1,000 for each VRF 5,000 for the switch
	VSP 7400 Series	1,000 for each VRF 5,000 for the switch
	VSP 8000 Series	1,000 for each VRF 5,000 for the switch
	XA1400 Series	1,000 for each VRF 5,000 for the switch
IPv4 route policies	VSP 4450 Series	500 for each VRF 5,000 for the switch
	VSP 4900 Series	500 for each VRF 5,000 for the switch
	VSP 7200 Series	500 for each VRF 5,000 for the switch
	VSP 7400 Series	500 for each VRF 5,000 for the switch
	VSP 8000 Series	500 for each VRF 5,000 for the switch
	XA1400 Series	500 for each VRF 5,000 for the switch

Table 18: IP Unicast Maximums (continued)

Attribute	Product	Maximum number supported
IPv4 UDP forwarding entries	VSP 4450 Series	128
	VSP 4900 Series	512
	VSP 7200 Series	512
	VSP 7400 Series	1,024
	VSP 8000 Series	512
	XA1400 Series	128
IPv4 DHCP Relay forwarding entries	VSP 4450 Series	128
	VSP 4900 Series	2048
	VSP 7200 Series	2048
	VSP 7400 Series	2048
	VSP 8000 Series	2048
	XA1400 Series	128
IPv6 DHCP Snoop entries in Source Binding Table	VSP 4450 Series	1,024
	VSP 4900 Series	1,024
	VSP 7200 Series	1,024
	VSP 7400 Series	1,024
	VSP 8000 Series	1,024
	XA1400 Series	n/a
IPv6 Neighbor table	VSP 4450 Series	4,000
	VSP 4900 Series	8,000
	VSP 7200 Series	8,000
	VSP 7400 Series	32,000
	VSP 8000 Series	8,000
	XA1400 Series	n/a
IPv6 static entries in Source Binding Table	VSP 4450 Series	256
	VSP 4900 Series	256
	VSP 7200 Series	256
	VSP 7400 Series	256
	VSP 8000 Series	256
	XA1400 Series	n/a

Table 18: IP Unicast Maximums (continued)

Attribute	Product	Maximum number supported
IPv6 static neighbor records	VSP 4450 Series	128
	VSP 4900 Series	128 per VRF 512 per system
	VSP 7200 Series	128 per VRF 512 per system
	VSP 7400 Series	128 per VRF 512 per system
	VSP 8000 Series	128 per VRF 512 per system
	XA1400 Series	n/a
IPv6 CLIP interfaces	VSP 4450 Series	64
	VSP 4900 Series	64
	VSP 7200 Series	64
	VSP 7400 Series	64
	VSP 8000 Series	64
	XA1400 Series	n/a
IPv6 static routes	VSP 4450 Series	1,000
	VSP 4900 Series	1,000
	VSP 7200 Series	1,000
	VSP 7400 Series	1,000
	VSP 8000 Series	1,000
	XA1400 Series	n/a
IPv6 6in4 configured tunnels	VSP 4450 Series	64
	VSP 4900 Series	64
	VSP 7200 Series	64
	VSP 7400 Series	64
	VSP 8000 Series	64
	XA1400 Series	n/a
IPv6 DHCP Relay forwarding	VSP 4450 Series	128
	VSP 4900 Series	512 per switch 10 per VRF
	VSP 7200 Series	512 per switch 10 per VRF
	VSP 7400 Series	512
	VSP 8000 Series	512
	XA1400 Series	n/a

Table 18: IP Unicast Maximums (continued)

Attribute	Product	Maximum number supported
IPv6 BGP peers	VSP 4450 Series	12 Up to 8,000 IPv6 prefixes for BGPv6 peering
	VSP 4900 Series	256 Up to 8,000 IPv6 prefixes for BGPv6 peering
	VSP 7200 Series	256 Up to 8,000 IPv6 prefixes for BGPv6 peering
	VSP 7400 Series	256
	VSP 8000 Series	256 Up to 8,000 IPv6 prefixes for BGPv6 peering
	XA1400 Series	n/a
IPv6 VRFs with iBGP	VSP 4450 Series	16
	VSP 4900 Series	16
	VSP 7200 Series	16
	VSP 7400 Series	16
	VSP 8000 Series	16
	XA1400 Series	n/a
BFD VRF instances	VSP 4450 Series	16
	VSP 4900 Series	16
	VSP 7200 Series	16
	VSP 7400 Series	16
	VSP 8000 Series	16
	XA1400 Series	n/a
BFD sessions per switch (IPv4/IPv6) with default values	VSP 4450 Series	16
	VSP 4900 Series	16
	VSP 7200 Series	16
	VSP 7400 Series	16
	VSP 8000 Series	16
	XA1400 Series	n/a

Table 18: IP Unicast Maximums (continued)

Attribute	Product	Maximum number supported
BFD sessions with Fabric Extend tunnels (IPv4)	VSP 4450 Series	Not Supported
	VSP 4900 Series	16
	VSP 7200 Series	16
	VSP 7400 Series	16
	VSP 8000 Series	16
	XA1400 Series	16
	VSP 4450 Series	16
	VSP 4900 Series	16

IP Interface Maximums for VSP 4900 Series

The maximum number of IP interfaces for VSP 4900 Series is based on the following formulas:

- If you disable the VRF scaling boot configuration flag:
  - = 500 – (# of VRRP IPv4 interfaces) - (# of VRRP IPv6 interfaces) – (# of RSMLT interfaces) – 2 (if IP Shortcuts is enabled) – 3x(# of VRFs)
- If you enable the VRF scaling boot configuration flag:
  - = 500 – (# of VRRP IPv4 interfaces) – (# of VRRP IPv6 interfaces) - (# of RSMLT interfaces) – 2 (if IP Shortcuts is enabled) – 3

IP Interface Maximums for VSP 7200 Series, VSP 8200 Series, and VSP 8400 Series

The maximum number of IP interfaces for VSP 7200 Series, VSP 8200 Series, and VSP 8400 Series is based on the following formulas:

- If you disable the VRF scaling boot configuration flag:
  - = 505 – (# of VRRP IPv4 interfaces) - (# of VRRP IPv6 interfaces) – (# of RSMLT interfaces) – 2 (if IP Shortcuts is enabled) – 3x(# of VRFs)
- If you enable the VRF scaling boot configuration flag:
  - = 505 – (# of VRRP IPv4 interfaces) – (# of VRRP IPv6 interfaces) - (# of RSMLT interfaces) – 2 (if IP Shortcuts is enabled) – 3

IP Interface Maximums for VSP 7400 Series

The maximum number of IP interfaces for VSP 7400 Series is based on the following formulas:

- If you disable the VRF scaling boot configuration flag:
  - = 1000 – (# of VRRP IPv4 interfaces) - (# of VRRP IPv6 interfaces) – (# of RSMLT interfaces) – 2 (if IP Shortcuts is enabled) – 3x(# of VRFs)

- If you enable the VRF scaling boot configuration flag:
  - = 1000 – (# of VRRP IPv4 interfaces) – (# of VRRP IPv6 interfaces) - (# of RSMLT interfaces) – 2 (if IP Shortcuts is enabled) – 3

Layer 3 Route Table Size

Table 19: Layer 3 Route Table Size Maximums

Attribute	Maximum number supported
IPv4 RIP routes	See Route Scaling on page 57.
IPv4 OSPF routes	
IPv4 BGP routes	
IPv4 SPB shortcut routes	
IPv4 SPB Layer 3 VSN routes	
IPv6 OSPFv3 routes - GRT only	
IPv6 SPB shortcut routes - GRT only	
IPv6 RIPng routes	

Route Scaling

The following table provides information on IPv4 and IPv6 route scaling. The route table is a shared hardware resource where IPv4 routes consume one entry and IPv6 routes with a prefix length less than 64 consume two entries.

The route scaling does not depend on the protocol itself, but rather the general system limitation in the following configuration modes:

- URPF check mode - Enable this boot configuration flag to support Unicast Reverse Path Forwarding check mode.
- IPv6 mode - Enable this boot configuration flag to support IPv6 routes with prefix-lengths greater than 64 bits. When the IPv6-mode is enabled, the maximum number of IPv4 routing table entries decreases. This flag does not apply to all hardware platforms.

Table 20: VSP 4450 Series, VSP 4900 Series, VSP 7200 Series, and VSP 8000 Series

URPF mode	IPv6 mode	VSP 4450 Series			VSP 7200 Series, VSP 4900 Series, and VSP 8000 Series		
		IPv4	IPv6		IPv4	IPv6	
			Prefix less than 64	Prefix greater than 64		Prefix less than 64	Prefix greater than 64
No	No	15,744	7,887	256	15,488	7,744	n/a
No	Yes	n/a	n/a	n/a	7,488	3,744	2,000
Yes	No	7,744	3,872	256	7,488	3,744	n/a

Table 20: VSP 4450 Series, VSP 4900 Series, VSP 7200 Series, and VSP 8000 Series (continued)

URPF mode	IPv6 mode	VSP 4450 Series			VSP 7200 Series, VSP 4900 Series, and VSP 8000 Series		
		IPv4	IPv6		IPv4	IPv6	
			Prefix less than 64	Prefix greater than 64		Prefix less than 64	Prefix greater than 64
Yes	Yes	n/a	n/a	n/a	3,488	1,744	2,000

Note:
The stated numbers in the preceding rows are one-dimensional where the given number implies that only routes for that address family or type are present. For a given row in the table, the maximum scaling number is ‘x’ IPv4 routes OR ‘y’ ipv6 <= 64 routes OR ‘z’ ipv6 >64 routes (not a combination of all).

Table 21: VSP 7400 Series

URPF mode	IPv6 mode	VSP 7400 Series		
		IPv4	IPv6	
			Prefix less than 64	Prefix greater than 64
No	No	15,000	7,000	n/a
No	Yes	7,000	3,500	2,000
Yes	No	7,000	3,500	n/a
Yes	Yes	3,000	1,500	1,000

Note:
The stated numbers in the preceding rows are one-dimensional where the given number implies that only routes for that address family or type are present. For a given row in the table, the maximum scaling number is ‘x’ IPv4 routes OR ‘y’ ipv6 <= 64 routes OR ‘z’ ipv6 >64 routes (not a combination of all).

Table 22: XA1400 Series

IPv4 BGP routes (control plane only)	15,488
IPv4 OSFP routes	15,488
IPv4 RIP routes	15,488
IPv4 routes	15,488
IPv4 SPB Shortcut routes	15,488

IP Multicast

Table 23: IP Multicast Maximums

Attribute	Product	Maximum number supported
IGMP/MLD interfaces (IPv4/IPv6)	VSP 4450 Series	4,059
	VSP 4900 Series	4,059
	VSP 7200 Series	4,059
	VSP 7400 Series	4,059
	VSP 8000 Series	4,059
	XA1400 Series	n/a
PIM interfaces (IPv4/IPv6)	VSP 4450 Series	128 Active
	VSP 4900 Series	128 Active
	VSP 7200 Series	128 Active
	VSP 7400 Series	128 Active
	VSP 8000 Series	128 Active
	XA1400 Series	n/a
PIM Neighbors (IPv4/IPv6) (GRT Only)	VSP 4450 Series	128
	VSP 4900 Series	128
	VSP 7200 Series	128
	VSP 7400 Series	128
	VSP 8000 Series	128
	XA1400 Series	n/a
PIM-SSM static channels (IPv4/IPv6)	VSP 4450 Series	512
	VSP 4900 Series	4,000
	VSP 7200 Series	4,000
	VSP 7400 Series	4,000
	VSP 8000 Series	4,000
	XA1400 Series	n/a
Multicast receivers/IGMP joins (IPv4/IPv6) (per switch)	VSP 4450 Series	1,000
	VSP 4900 Series	6,000
	VSP 7200 Series	6,000
	VSP 7400 Series	6,000
	VSP 8000 Series	6,000
	XA1400 Series	n/a

Table 23: IP Multicast Maximums (continued)

Attribute	Product	Maximum number supported
Total multicast routes (S,G,V) (IPv4/IPv6) (per switch)	VSP 4450 Series	1,000
	VSP 4900 Series	6,000
	VSP 7200 Series	6,000
	VSP 7400 Series	6,000
	VSP 8000 Series	6,000
	XA1400 Series	n/a
Total multicast routes (S,G,V) (IPv4) on an SPB-PIM Gateway configured switch	VSP 4450 Series	1,000
	VSP 4900 Series	3,000
	VSP 7200 Series	3,000
	VSP 7400 Series	3,000
	VSP 8000 Series	3,000
	XA1400 Series	n/a
Static multicast routes (S,G,V) (IPv4/IPv6)	VSP 4450 Series	512
	VSP 4900 Series	4,000
	VSP 7200 Series	4,000
	VSP 7400 Series	4,000
	VSP 8000 Series	4,000
	XA1400 Series	n/a
Multicast enabled Layer 2 VSN (IPv4)	VSP 4450 Series	1,000
	VSP 4900 Series	2,000
	VSP 7200 Series	2,000
	VSP 7400 Series	2,000
	VSP 8000 Series	2,000
	XA1400 Series	n/a
Multicast enabled Layer 3 VSN (IPv4)	VSP 4450 Series	128 including mgmt VRF and GRT
	VSP 4900 Series	256 including mgmt VRF and GRT
	VSP 7200 Series	256 including mgmt VRF and GRT
	VSP 7400 Series	256 including mgmt VRF and GRT
	VSP 8000 Series	256 including mgmt VRF and GRT
	XA1400 Series	n/a

Table 23: IP Multicast Maximums (continued)

Attribute	Product	Maximum number supported
SPB-PIM Gateway controller S,Gs (source announcements) with MSDP (IPv4)	VSP 4450 Series	6,000
	VSP 4900 Series	6,000
	VSP 7200 Series	6,000
	VSP 7400 Series	6,000
	VSP 8000 Series	6,000
	XA1400 Series	n/a
SPB-PIM Gateway controllers per SPB fabric (IPv4)	VSP 4450 Series	5
	VSP 4900 Series	5
	VSP 7200 Series	5
	VSP 7400 Series	5
	VSP 8000 Series	5
	XA1400 Series	n/a
SPB-PIM Gateway nodes per SPB fabric (IPv4)	VSP 4450 Series	64
	VSP 4900 Series	64
	VSP 7200 Series	64
	VSP 7400 Series	64
	VSP 8000 Series	64
	XA1400 Series	n/a
SPB-PIM Gateway interfaces per BEB (IPv4)	VSP 4450 Series	64
	VSP 4900 Series	64
	VSP 7200 Series	64
	VSP 7400 Series	64
	VSP 8000 Series	64
	XA1400 Series	n/a
PIM neighbors per SPB-PIM Gateway node (IPv4)	VSP 4450 Series	64
	VSP 4900 Series	64
	VSP 7200 Series	64
	VSP 7400 Series	64
	VSP 8000 Series	64
	XA1400 Series	n/a

Distributed Virtual Routing (DvR)

Note

Local hosts use ARP entries and remote hosts use host entries. For information on IP ARP scaling, see IP Unicast on page 47.

Table 24: DvR Maximums

Attribute	Product	Maximum number supported
Note: • On the DvR leaf, you must enable the VRF scaling boot configuration flag if more than 24 VRFs are required in the DvR domain. • Scaling of the VSP 4450 Series controls the scaling of the DvR domain it is in. For example, if a VSP 4450 Series switch is in a DvR domain with other platforms such as VSP 7200 Series and VSP 8000 Series, the scaling of the entire domain is limited to the scaling of the VSP 4450 Series.		
DvR Virtual IP interfaces	VSP 4450 Series	501 with vIST 502 without vIST
	VSP 4900 Series	499 with vIST 500 without vIST
	VSP 7200 Series	501 with vIST 502 without vIST
	VSP 7400 Series	999 with vIST 1,000 without vIST
	VSP 8000 Series	VSP 8404C = 499 with vIST 500 without vIST Other VSP 8000 Series platforms = 501 with vIST 502 without vIST
	XA1400 Series	n/a
DvR domains per SPB fabric	VSP 4450 Series	16
	VSP 4900 Series	16
	VSP 7200 Series	16
	VSP 7400 Series	16
	VSP 8000 Series	16
	XA1400 Series	n/a

Table 24: DvR Maximums (continued)

Attribute	Product	Maximum number supported
Controller nodes per DvR domain with default route inject flag enabled Total number of Controllers per domain cannot exceed 8. Note: A DvR domain containing only Controller nodes and no Leaf nodes can have more than 8 Controllers per domain.	VSP 4450 Series	n/a
	VSP 4900 Series	8
	VSP 7200 Series	8
	VSP 7400 Series	8
	VSP 8000 Series	8
	XA1400 Series	n/a
Leaf nodes per DvR domain	VSP 4450 Series	250
	VSP 4900 Series	250
	VSP 7200 Series	250
	VSP 7400 Series	250
	VSP 8000 Series	250
	XA1400 Series	n/a
DvR enabled Layer 2 VSNs	VSP 4450 Series	501 with vIST 502 without vIST
	VSP 4900 Series	501 with vIST 502 without vIST
	VSP 7200 Series	501 with vIST 502 without vIST
	VSP 7400 Series	999 with vIST 1,000 without vIST
	VSP 8000 Series	501 with vIST 502 without vIST
	XA1400 Series	n/a
DvR host route scaling per DvR domain (scaling number includes local as well as foreign hosts of the Layer 2 VSN that are members of the domain) If DvR Layer 2 VSNs span DvR domains, and all DvR Controllers have an IP interface on the Layer 2 VSNs, then the DvR host scaling is network-wide, as DvR Controllers will consume as many host routes as there are hosts across all DvR domains.	VSP 4450 Series	6,000
	VSP 4900 Series	32,000
	VSP 7200 Series	32,000
	VSP 7400 Series	40,000
	VSP 8000 Series	32,000
	XA1400 Series	n/a

VXLAN Gateway

Table 25: VXLAN Gateway Maximums

Attribute	Product	Maximum number supported
MAC addresses in base interworking mode	VSP 4450 Series	n/a
	VSP 4900 Series	n/a
	VSP 7200 Series	112,000
	VSP 7400 Series	80,000
	VSP 8000 Series	112,000
	XA1400 Series	n/a
MAC addresses in full interworking mode	VSP 4450 Series	n/a
	VSP 4900 Series	n/a
	VSP 7200 Series	74,000
	VSP 7400 Series	50,000
	VSP 8000 Series	74,000
	XA1400 Series	n/a
VNI IDs per node	VSP 4450 Series	n/a
	VSP 4900 Series	n/a
	VSP 7200 Series	2,000
	VSP 7400 Series	2,000
	VSP 8000 Series	VSP 8404C = 4,000 Other VSP 8000 Series platforms = 2,000
	XA1400 Series	n/a
VTEP destinations per node or VTEP	VSP 4450 Series	n/a
	VSP 4900 Series	n/a
	VSP 7200 Series	500
	VSP 7400 Series	500
	VSP 8000 Series	500
	XA1400 Series	n/a

The following table provides maximum numbers for OVSDB protocol support for VXLAN Gateway.

Table 26: OVSDB protocol support for VXLAN Gateway Maximums

Attribute	Product	Maximum number supported
Maximum controllers to which a single VTEP switch can connect	VSP 4450 Series	n/a
	VSP 4900 Series	n/a
	VSP 7200 Series	3
	VSP 7400 Series	3
	VSP 8000 Series	3
	XA1400 Series	n/a

Filters, QoS, and Security

Table 27: Filters, QoS, and Security Maximums

Attribute	Product	Maximum number supported
For more information, see Filter Scaling on page 67.		
Total IPv4 Ingress rules/ACEs (Port/VLAN/InVSN based, Security/QoS filters)	VSP 4450 Series	1,020
	VSP 4900 Series	1,536
	VSP 7200 Series	766
	VSP 7400 Series	767 Primary Bank 767 Secondary Bank
	VSP 8000 Series	VSP 8404C = 3,070 Other VSP 8000 Series platforms = 766
	XA1400 Series	500

Table 27: Filters, QoS, and Security Maximums (continued)

Attribute	Product	Maximum number supported
Total IPv4 Egress rules/ACEs (Port based, Security filters)	VSP 4450 Series	255 200 if you enable **boot config flags ipv6-egress-filter**
	VSP 4900 Series	248
	VSP 7200 Series	248 200 if you enable **boot config flags ipv6-egress-filter**
	VSP 7400 Series	783 271 if you enable **boot config flags ipv6-egress-filter**
	VSP 8000 Series	VSP 8404 and VSP 8404C = 251 Other VSP 8000 Series platforms = 252 200 if you enable **boot config flags ipv6-egress-filter**
	XA1400 Series	500
Total IPv6 Ingress rules/ACEs (Port/VLAN/InVSN based, Security filters)	VSP 4450 Series	255
	VSP 4900 Series	1024
	VSP 7200 Series	256
	VSP 7400 Series	767
	VSP 8000 Series	VSP 8404 = 511 VSP 8404C = 2,047 Other VSP 8000 Series platforms = 256
	XA1400 Series	n/a
Total IPv6 egress rules/ACEs (Port based, Security filters)	VSP 4450 Series	256
	VSP 4900 Series	256
	VSP 7200 Series	256
	VSP 7400 Series	511
	VSP 8000 Series	256
	XA1400 Series	n/a

Table 27: Filters, QoS, and Security Maximums (continued)

Attribute	Product	Maximum number supported
EAP (clients per port) Note: The total of EAP clients plus NEAP clients per port or per switch cannot exceed 8,192.	VSP 4450 Series	32
	VSP 4900 Series	32
	VSP 7200 Series	32
	VSP 7400 Series	32
	VSP 8000 Series	32
	XA1400 Series	n/a
NEAP Note: The total of EAP clients plus NEAP clients per port or per switch cannot exceed 8,192.	VSP 4450 Series	8,192
	VSP 4900 Series	8,192 for NEAP
	VSP 7200 Series	8,192 for NEAP
	VSP 7400 Series	8,192 for NEAP
	VSP 8000 Series	8,192 for NEAP
	XA1400 Series	n/a

Filter Scaling

This section provides more details on filter scaling numbers for the supported platforms.

VSP 4450 Series

The switch supports the following maximum limits:

- 220 IPv4 ingress ACLs
- 50 IPv4 egress ACLs
- 128 IPv6 ingress ACLs
- 1,020 IPv4 ingress ACEs
- 252 IPv4 egress ACEs
- 255 IPv6 ingress ACEs
- 255 IPv6 egress ACEs

Note

You can configure up to 1000 ACEs in a single ACL.

The switch supports the following maximum limits regarding ingress ACLs (inPort or inVlan):

256 (InPort security ACE + ACL) + 256 (inVlan security ACE +ACL) + 256 (inPort QoS ACE + ACL) + 256 (inVlan QoS ACE + ACL)

VSP 4900 Series

The switch supports the following maximum limits:

- 512 non-IPv6 ingress ACLs (inPort, inVSN, or inVlan):
  - 512 ACLs with 1 security ACE each OR
  - 256 ACLs with 1 QoS ACE each OR
  - a combination based on the following rule:
    - ((num ACLs + num security ACEs) <= 1024) && ((num ACLs + num QoS ACEs) <= 512)

  This maximum implies a VLAN member count of 1 for inVlan ACLs
- 512 IPv6 ingress ACLs (inPort):
  - 512 ACLs with 1 security ACE each OR
  - a combination based on the following rule:
    - (num ACLs + num security ACEs) <= 512
- 124 egress ACLs (outPort only):
  - 124 ACLs with 1 security ACE each (one of these ACLs can have 2 ACEs) OR
  - a combination based on the following rule:
    - (num ACLs + num ACEs) <= 248

  This maximum implies a port member count of 1 for outPort ACLs.
- 1534 ingress ACEs:

  Theoretical maximum of 1534 implies 1 ingress ACL with 1023 security ACEs and 511 QoS ACEs
  - Ingress ACEs supported: (1024 (security) - # of ACLs) + (512 (QoS) - # of ACLs).

  This maximum also implies a VLAN member count of 1 for an inVlan ACL.
- 247 egress ACEs:

  Theoretical maximum of 247 implies 1 egress ACL with 247 security ACEs
  - Egress ACEs supported: 248 - # of ACLs.

  This maximum also implies a port member count of 1 for the outPort ACL.

VSP 7400 Series

The switch supports the following maximum limits for ACL scaling:

- 512 non-IPv6 ingress ACLs (inVSN, inPort, or inVlan):
  - 256 ACLs with 1 Primary ACE each + 256 ACLs with 1 Secondary ACE each OR
  - 383 ACLs with 1 Primary ACE each and/or 1 Secondary ACE each OR
  - a combination based on the following rule:
    - num ACLs <= 512 && (num ACLs + num Primary ACEs) <= 767 && (num ACLs + num Secondary ACEs) <= (767 – X) where X = num IPv6 ACLs + num IPv6 ACEs

  For Primary bank, maximum implies a single port on inPort ACLs, a single I-SID for in VSN, and a single VLAN on inVlan ACLs.

For Secondary bank, inPort ACLs number of consumed rules is not multiplied by the number of ports attached to the ACL.

- 383 IPv6 ingress ACLs (inPort):
  - 383 IPv6 ACLs with 1 ACE each OR
  - A combination based on the following rule:
    - num IPv6 ACLs <= 383 && (num IPv6 ACLs + num ACEs) <= (767 – X) where X = num non-IPv6 ACLs + num non-IPv6 Secondary ACEs

  This maximum implies a single port on inPort ACLs.
- 254 non-IPv6 egress ACLs (outPort):
  - 254 ACLS with 1 Security ACE each OR
    - A combination based on the following rule:
      - num ACLs <= 254 && (num ACLs + num Security ACEs) <= 508

  This maximum implies a single port on outPort ACLs.
- 256 IPv6 Egress ACLs (outPort):
  - 256 ACLS with 1 Security ACE each OR
  - A combination based on the following rule:
    - num ACLs <= 256 && (num ACLs + num Security ACEs) <= 512

  This maximum implies a single port on outPort ACLs.

The switch supports the following maximum limits for ACE scaling:

- 1,532 non-IPv6 ingress ACEs

  This theoretical maximum implies
  - 2 non-IPv6 ingress ACL with 383+384 Primary ACEs and 383+384 Secondary ACEs
  - no IPv6 ACLs configured
  - a single port on inPort ACLs, and a single VLAN on inVLAN ACLs
- 767 IPv6 ingress ACEs

  This theoretical maximum implies
  - 1 IPv6 ingress ACL with 767 Security ACEs
  - no non-IPv6 ACLs configured
  - a port member count of 1 for inPort ACLs
- 783 non-IPv6 egress ACEs.

  This theoretical maximum implies
  - 1 egress ACL with 783 Security ACEs
  - a port member count of 1 for outPort ACLs
  - Non IPv6 egress ACEs supported: 783 - num non-IPv6 egress ACLs
- 511 IPv6 egress ACEs

  This theoretical maximum implies
  - 1 egress ACL with 511 Security ACEs

- a port member count of 1 for outPort ACLs
- 511 - num IPv6 egress ACLs

VSP 7200 Series, VSP 8200 Series, and VSP 8404

The switch supports the following maximum limits:

- 256 non-IPv6 ingress ACLs (inPort, inVSN, or inVlan):
  - 256 ACLs with 1 security ACE each OR
  - 128 ACLs with 1 QoS ACE each OR
  - a combination based on the following rule:
    - ((num ACLs + num security ACEs) <= 512) && ((num ACLs + num QoS ACEs) <= 256)

  This maximum implies a VLAN member count of 1 for inVlan ACLs
- 256 IPv6 ingress ACLs (inPort,):
  - 256 ACLs with 1 security ACE each OR
  - 256 ACLs with 1 QoS ACE each OR
  - a combination based on the following rule:
    - (num ACLs + num security ACEs) <= 256
- 124 egress ACLs (outPort only):
  - 124 ACLs with 1 security ACE each (one of these ACLs can have 2 ACEs)

  This maximum implies a port member count of 1 for outPort ACLs.
- 766 ingress ACEs:

  Theoretical maximum of 766 implies 1 ingress ACL with 511 security ACEs and 255 QoS ACEs
  - Ingress ACEs supported: (512 (security) - # of ACLs) + (256(QoS) - # of ACLs).

  This maximum also implies a VLAN member count of 1 for an inVlan ACL.
- 252 egress ACEs:

  Theoretical maximum of 252 implies 1 egress ACL with 252 security ACEs
  - Egress ACEs supported: 253 - # of ACLs.

  This maximum also implies a port member count of 1 for the outPort ACL.

VSP 8404C

The switch supports a maximum 3,070 non-IPv6 ingress ACEs, 2,047 IPv6 ingress ACEs, and 251 non-IPv6 egress ACEs.

IPv6 ingress and IPv6 egress QoS ACL/Filters are not supported. If you disable an ACL, the ACL state affects the administrative state of all of the ACEs within it.

The switch supports the following maximum limits for ACL scaling:

- 1,024 non-IPv6 ingress ACLs (inPort, inVlan, or InVSN):
  - 1,024 ACLs with 1 security ACE each OR

- a combination based on the following rule:
  - num of ACLs <= 1,024 AND (num of ACLs + Security ACEs) <= 2,048 AND (num of ACLs + QoS ACEs) <= 1,024

This maximum implies a VLAN member count of 1 for inVlan ACLs.

- 1,024 IPv6 ingress ACLs (inPort):
  - 1,024 IPv6 ACLs with 1 security ACE each OR
  - a combination based on the following rule:
    - num of IPv6 ACLs <= 1,024 AND (num of IPv6 ACLs + Security ACEs) <= 2,048
- 126 non-IPv6 egress ACLs (outPort):
  - 126 ACLs with 1 Security ACE each OR
  - a combination based on the following rule:
    - num ACLs <= 126 AND num ACLs + num security ACEs) <= 252

This maximum implies a port member counter of 1 for outPort ACLs.

The switch supports the following maximum limits for ACE scaling:

- 3,070 non-IPv6 ingress ACEs:

  The theoretical maximum implies the following configuration:
  - 1 non-IPv6 ingress ACL with 2,047 security ACEs and 1,023 QoS ACEs
  - a VLAN member count of 1 for inVlan ACLs
  - Non-IPv6 Ingress ACEs supported: [2,048(security) - (num of ACLs)] + [1,024(QoS) - (num of ACLs)]
- 2,047 IPv6 ingress ACEs:

  The theoretical maximum implies the following configuration:
  - 1 IPv6 ingress ACL with 2,047 security ACEs
  - IPv6 Ingress ACEs supported: [2,048(security) - (num of ACLs)]
- 251 non-IPv6 egress ACEs:

  The theoretical maximum implies the following configuration:
  - 1 egress ACL with 251 security ACEs
  - a port member count of 1 for outPort ACLs
  - Non IPv6 egress ACEs supported: 252 - (num egress ACLs)

XA1400 Series

The switch supports the following maximum limits:

- 500 IPv4 ingress ACLs
- 500 IPv4 egress ACLs
- 500 IPv4 ingress ACEs
- 500 IPv4 egress ACEs

Routed Private VLANs/E-TREEs Scaling

The number of private VLANs that you configure with an IP address influences the IPv4 Egress ACE count.

The following table lists scaling limits for Routed Private VLANs/E-TREEs. Limits are not enforced; either number of private VLANs or number of private VLAN trunk ports can go beyond the recommended values.

Table 28: Routed Private VLANs/E-TREEs Maximums

	Private VLAN trunk ports	Routed PVLANs/E-TREEs	IPv4 Egress ACE rules available (No IPv6 egress filter bootflag enabled)	IPv4 Egress ACE rules available (With IPv6 egress filter bootflag enabled)
VSP 4900 Series	4	30	97	49
VSP 7200 Series	4	10	147	99
VSP 7400 Series	4	50	532	20
VSP 8200 Series	4	10	181	129
VSP 8400 Series	4	10	181	129

Use the **`show io resources filter`** command to verify remaining resources. This command displays the following information:

- resources consumed by Routed Private VLANs
- free entries available for either IPv4 Egress ACEs or private VLANs

The following example output displays resource usage on a VSP 7400 Series for ten Routed Private VLANs with four private trunk members each.

```
Switch:1>show io resources filter
================================================================================
                                FILTER TABLE
================================================================================
--------------------------------------------------------------------------------
ACL Filter Resource Manager stats
--------------------------------------------------------------------------------
BCM CAP Group: | ICAP_SEC  | ICAP_QOS  | ICAP_IPv6 | ECAP_SEC  | ECAP_IPv6
   Group Mode: | Double    | Triple    | Triple    | Double    | Double
--------------------------------------------------------------------------------
Total Entries  : |   767   |   767     |   767     |     782   |     512
 Free Entries  : |   767   |   767     |   767     |     732   |     512
    In Use     : |     0   |     0     |     0     |      50   |       0
Filter table:
----------------------------------------------------------------
  ACL |        |Port/Vlan|  Sec  |  QoS  |  All  |
  ID  | Flags  | Members | ACE's | ACE's | ACE's | Type
----------------------------------------------------------------
----------------------------------------------------------------

Filter resources used by other features:
-------------------------------------
Feature | Type | Number of entries |
-------------------------------------
```

```
 PVlan   | ECAP |          50         |
-------------------------------------
```

OAM and Diagnostics

Table 29: OAM and Diagnostics Maximums

Attribute	Product	Maximum number supported
EDM sessions	VSP 4450 Series	5
	VSP 4900 Series	5
	VSP 7200 Series	5
	VSP 7400 Series	5
	VSP 8000 Series	5
	XA1400 Series	5
FTP sessions (IPv4/IPv6)	VSP 4450 Series	8 total (4 for IPv4 and 4 for IPv6)
	VSP 4900 Series	8 total (4 for IPv4 and 4 for IPv6)
	VSP 7200 Series	8 total (4 for IPv4 and 4 for IPv6)
	VSP 7400 Series	8 total (4 for IPv4 and 4 for IPv6)
	VSP 8000 Series	8 total (4 for IPv4 and 4 for IPv6)
	XA1400 Series	4 (IPv4 only)
SSH sessions (IPv4/IPv6)	VSP 4450 Series	8 total (any combination of IPv4 and IPv6)
	VSP 4900 Series	8 total (any combination of IPv4 and IPv6)
	VSP 7200 Series	8 total (any combination of IPv4 and IPv6)
	VSP 7400 Series	8 total (any combination of IPv4 and IPv6)
	VSP 8000 Series	8 total (any combination of IPv4 and IPv6)
	XA1400 Series	8 (IPv4 only)

Table 29: OAM and Diagnostics Maximums (continued)

Attribute	Product	Maximum number supported
Telnet sessions (IPv4/IPv6)	VSP 4450 Series	16 total (8 for IPv4 and 8 for IPv6)
	VSP 4900 Series	16 total (8 for IPv4 and 8 for IPv6)
	VSP 7200 Series	16 total (8 for IPv4 and 8 for IPv6)
	VSP 7400 Series	16 total (8 for IPv4 and 8 for IPv6)
	VSP 8000 Series	16 total (8 for IPv4 and 8 for IPv6)
	XA1400 Series	8 (IPv4 only)
TFTP sessions (IPv4/IPv6)	VSP 4450 Series	2 total (any combination of IPv4 and IPv6)
	VSP 4900 Series	2 total (any combination of IPv4 and IPv6)
	VSP 7200 Series	2 total (any combination of IPv4 and IPv6)
	VSP 7400 Series	2 total (any combination of IPv4 and IPv6)
	VSP 8000 Series	2 total (any combination of IPv4 and IPv6)
	XA1400 Series	n/a
Mirrored ports (source)	VSP 4450 Series	49
	VSP 4900 Series	51 (52 ports per chassis, 48 fixed ports plus up to 4 ports on the VIMs)
	VSP 7200 Series	53 (up to 71 with channelization)
	VSP 7400 Series	31 (up to 125 with channelization) with Advanced Feature Bandwidth Reservation configured in Full Port mode
	VSP 8000 Series	83 (up to 95 with channelization)
	XA1400 Series	7

Table 29: OAM and Diagnostics Maximums (continued)

Attribute	Product	Maximum number supported
Mirroring ports (destination)	VSP 4450 Series	4
	VSP 4900 Series	4
	VSP 7200 Series	4
	VSP 7400 Series	4
	VSP 8000 Series	4
	XA1400 Series	4
Fabric RSPAN Port mirror instances per switch (Ingress only)	VSP 4450 Series	Port mirror sessions can be mapped to 24 unique I-SID offsets for Ingress Mirror. Only one I-SID offset for Egress Mirror.
	VSP 4900 Series	Port mirror sessions can be mapped to 24 unique I-SID offsets for Ingress Mirror. Only one I-SID offset for Egress Mirror.
	VSP 7200 Series	Port mirror sessions can be mapped to 24 unique I-SID offsets for Ingress Mirror. Only one I-SID offset for Egress Mirror.
	VSP 7400 Series	Port mirror sessions can be mapped to 24 unique I-SID offsets for Ingress Mirror. Only one I-SID offset for Egress Mirror.
	VSP 8000 Series	Port mirror sessions can be mapped to 24 unique I-SID offsets for Ingress Mirror. Only one I-SID offset for Egress Mirror.
	XA1400 Series	n/a

Table 29: OAM and Diagnostics Maximums (continued)

Attribute	Product	Maximum number supported
Fabric RSPAN Flow mirror instances per switch (Ingress only)	VSP 4450 Series	Filter ACL ACE sessions can be mapped to only 1 mirror I-SID offset.
	VSP 4900 Series	Filter ACL ACE sessions can be mapped to 24 unique I-SID offsets.
	VSP 7200 Series	Filter ACL ACE sessions can be mapped to 24 unique I-SID offsets.
	VSP 7400 Series	Filter ACL ACE sessions can be mapped to 24 unique I-SID offsets.
	VSP 8000 Series	Filter ACL ACE sessions can be mapped to 24 unique I-SID offsets.
	XA1400 Series	n/a
Fabric RSPAN Monitoring I-SIDs (network value)	VSP 4450 Series	1,000 Monitoring I-SIDs across SPB network
	VSP 4900 Series	1,000 Monitoring I-SIDs across SPB network
	VSP 7200 Series	1,000 Monitoring I-SIDs across SPB network
	VSP 7400 Series	1,000 Monitoring I-SIDs across SPB network
	VSP 8000 Series	1,000 Monitoring I-SIDs across SPB network
	XA1400 Series	n/a
sFlow sampling limit	VSP 4450 Series	125 samples per second
	VSP 4900 Series	3,100 samples per second
	VSP 7200 Series	3,100 samples per second
	VSP 7400 Series	9,000 samples per second
	VSP 8000 Series	3,100 samples per second
	XA1400 Series	n/a

Table 29: OAM and Diagnostics Maximums (continued)

Attribute	Product	Maximum number supported
IPFIX flows	VSP 4450 Series	n/a
	VSP 4900 Series	n/a
	VSP 7200 Series	n/a
	VSP 7400 Series	32,767
	VSP 8000 Series	n/a
	XA1400 Series	n/a
Application Telemetry host monitoring - maximum number of monitored hosts Note: These resources are shared with the IPv4 Filter Ingress rules/ACEs.	VSP 4450 Series	509 hosts
	VSP 4900 Series	382 hosts
	VSP 7200 Series	382 hosts
	VSP 7400 Series	767 hosts
	VSP 8000 Series	VSP 8404C = 1,534 hosts Other VSP 8000 Series platforms = 382 hosts
	XA1400 Series	n/a

Extreme Integrated Application Hosting Scaling

Note

The scaling attributes in this section do not apply to the following products:

- VSP 4450 Series
- VSP 7200 Series
- VSP 8200 Series
- VSP 8400 Series
- XA1400 Series

Table 30: Extreme Integrated Application Hosting (IAH) Maximums

Attribute	Product	Maximum number supported
Simultaneous Virtual Machines	VSP 4900 Series	Not supported
	VSP 7400 Series	6
CPU cores available to VMs	VSP 4900 Series	2
	VSP 7400 Series	6
Memory available to VMs	VSP 4900 Series	4 GB
	VSP 7400 Series	12 GB

Table 30: Extreme Integrated Application Hosting (IAH) Maximums (continued)

Attribute	Product	Maximum number supported
Storage available to VMs	VSP 4900 Series	104 GB of 120 modular SSD
	VSP 7400 Series	100 GB
Total SRIOV vports available to VMs	VSP 4900 Series	16
	VSP 7400 Series	16
Vports available to single VM	VSP 4900 Series	16
	VSP 7400 Series	16

Fabric Scaling

This section lists the fabric scaling information.

Table 31: Fabric Maximums

Attribute	Product	Maximum number supported (with and without vIST)
Number of SPB IS-IS areas	VSP 4450 Series	1
	VSP 4900 Series	1
	VSP 7200 Series	1
	VSP 7400 Series as Interior Node	1
	VSP 7400 Series as Boundary Node	2
	VSP 8000 Series	1
	XA1400 Series	1
Number of B-VIDs	VSP 4450 Series	2
	VSP 4900 Series	2
	VSP 7200 Series	2
	VSP 7400 Series	2
	VSP 8000 Series	2
	XA1400 Series	2

Table 31: Fabric Maximums (continued)

Attribute	Product	Maximum number supported (with and without vIST)
Maximum number of Physical and Logical (Fabric Extend) NNI interfaces/adjacencies (Home and Remote area total when operating as Boundary Node)	VSP 4450 Series	255
	VSP 4900 Series	255, of which 64 can be with IPsec using Fabric IPsec Gateway
	VSP 7200 Series	255
	VSP 7400 Series	255, of which 64 can be with IPsec using Fabric IPsec Gateway
	VSP 8000 Series	255
	XA1400 Series	255, of which 64 can be with IPsec
SPBM enabled nodes per area (BEB + BCB)	VSP 4450 Series	550
	VSP 4900 Series	800
	VSP 7200 Series	800
	VSP 7400 Series as Interior Node	2,000
	VSP 7400 Series as Boundary Node	500 per area
	VSP 8000 Series	800
	XA1400 Series	550
Number of BEBs not part of vIST clusters this node can share services with (Layer 2 VSNs, Layer 3 VSNs, E-Tree, Multicast, Transparent Port UNI)	VSP 4450 Series	500
	VSP 4900 Series	500
	VSP 7200 Series	500
	VSP 7400 Series	2,000
	VSP 8000 Series	500
	XA1400 Series	n/a
Number of BEBs that are part of a vIST cluster this node can share services with (Layer 2 VSNs, Layer 3 VSNs, E-Tree, Multicast, Transparent Port UNI)	VSP 4450 Series	500
	VSP 4900 Series	330
	VSP 7200 Series	330
	VSP 7400 Series	1,330
	VSP 8000 Series	330
	XA1400 Series	n/a

Table 31: Fabric Maximums (continued)

Attribute	Product	Maximum number supported (with and without vIST)
I-SIDs supported (local UNI present on device)	VSP 4450 Series	See Number of I-SIDs supported
	VSP 4900 Series	See Number of I-SIDs supported
	VSP 7200 Series	See Number of I-SIDs supported
	VSP 7400 Series	See Number of I-SIDs supported
	VSP 8000 Series	See Number of I-SIDs supported
	XA1400 Series	See Number of I-SIDs supported
I-SIDs supported on Boundary Nodes (no local UNI present on device)	VSP 4450 Series	n/a
	VSP 4900 Series	n/a
	VSP 7200 Series	n/a
	VSP 7400 Series as Boundary Node	9,600
	VSP 8000 Series	n/a
	XA1400 Series	n/a
Maximum number of Layer 2 VSNs per switch (local UNI present on device)	VSP 4450 Series	1,000
	VSP 4900 Series	4,059
	VSP 7200 Series	4,059
	VSP 7400 Series	4,000
	VSP 8000 Series	4,059
	XA1400 Series	124
Maximum number of inter-area redistributed Layer 2 VSNs (no local UNI present on Boundary Node)	VSP 4450 Series	n/a
	VSP 4900 Series	n/a
	VSP 7200 Series	n/a
	VSP 7400 Series as Boundary Node	9,600
	VSP 8000 Series	n/a
	XA1400 Series	n/a

Table 31: Fabric Maximums (continued)

Attribute	Product	Maximum number supported (with and without vIST)
Maximum number of Switched UNI Endpoints (C-VID or untagged port bindings)	VSP 4450 Series	6,000
	VSP 4900 Series	8,000
	VSP 7200 Series	8,000
	VSP 7400 Series	12,000
	VSP 8000 Series	8,000
	XA1400 Series	n/a
Maximum number of Transparent Port UNIs per switch	VSP 4450 Series	48
	VSP 4900 Series	52
	VSP 7200 Series	54 (up to 72 with channelization)
	VSP 7400 Series	VSP 7432CQ = 30 (up to 120 with channelization) configured in Full Port mode VSP 7400-48Y = 54 configured in Full Port mode
	VSP 8000 Series	84 (up to 96 with channelization)
	XA1400 Series	n/a
Maximum number of E-Tree PVLAN UNIs per switch	VSP 4450 Series	200
	VSP 4900 Series	200
	VSP 7200 Series	200
	VSP 7400 Series	200
	VSP 8000 Series	VSP 8404C = 400 Other VSP 8000 Series platforms = 200
	XA1400 Series	n/a

Table 31: Fabric Maximums (continued)

Attribute	Product	Maximum number supported (with and without vIST)
Maximum number of Layer 3 VSNs per switch See VRF Scaling on page 90.	VSP 4450 Series	128 including mgmt VRF and GRT
	VSP 4900 Series	256 including mgmt VRF and GRT
	VSP 7200 Series	256 including mgmt VRF and GRT
	VSP 7400 Series	256 including mgmt VRF and GRT
	VSP 8000 Series	256 including mgmt VRF and GRT
	XA1400 Series	23
Maximum number of SPB Layer 2 multicast Data I-SIDs	VSP 4450 Series	See Maximum Number of SPB Multicast Data I-SIDs on page 85
	VSP 4900 Series	See Maximum Number of SPB Multicast Data I-SIDs on page 85
	VSP 7200 Series	See Maximum Number of SPB Multicast Data I-SIDs on page 85
	VSP 7400 Series	See Maximum Number of SPB Multicast Data I-SIDs on page 85
	VSP 8000 Series	See Maximum Number of SPB Multicast Data I-SIDs on page 85
	XA1400 Series	n/a

Table 31: Fabric Maximums (continued)

Attribute	Product	Maximum number supported (with and without vIST)
Maximum number of SPB Layer 3 multicast Data I-SIDs	VSP 4450 Series	See Maximum Number of SPB Multicast Data I-SIDs on page 85 Note: Due to internal resource sharing IP Multicast scaling depends on network topology. Switch will issue warning when 85 and 90% of available resources are reached.
	VSP 4900 Series	See Maximum Number of SPB Multicast Data I-SIDs on page 85 Note: Due to internal resource sharing IP Multicast scaling depends on network topology. Switch will issue warning when 85 and 90% of available resources are reached.
	VSP 7200 Series	See Maximum Number of SPB Multicast Data I-SIDs on page 85 Note: Due to internal resource sharing IP Multicast scaling depends on network topology. Switch will issue warning when 85 and 90% of available resources are reached.
	VSP 7400 Series	See Maximum Number of SPB Multicast Data I-SIDs on page 85 Note: Due to internal resource sharing IP Multicast scaling depends on network topology. Switch will issue warning when 85 and 90%

Table 31: Fabric Maximums (continued)

Attribute	Product	Maximum number supported (with and without vIST)
		of available resources are reached.
	VSP 8000 Series	See Maximum Number of SPB Multicast Data I-SIDs on page 85 Note: Due to internal resource sharing IP Multicast scaling depends on network topology. Switch will issue warning when 85 and 90% of available resources are reached.
	XA1400 Series	n/a
Maximum number of FA ISID/VLAN assignments per port	VSP 4450 Series	94
	VSP 4900 Series	94
	VSP 7200 Series	94
	VSP 7400 Series	94
	VSP 8000 Series	94
	XA1400 Series	n/a
Maximum number of IP multicast S,Gs when operating as a BCB (intra-area)	VSP 4450 Series	1,000
	VSP 4900 Series	16,000
	VSP 7200 Series	16,000
	VSP 7400 Series	50,000
	VSP 8000 Series	16,000
	XA1400 Series	2,000
Maximum number of IP multicast S,Gs when operating as a Boundary Node (inter-area)	VSP 4450 Series	n/a
	VSP 4900 Series	n/a
	VSP 7200 Series	n/a
	VSP 7400 Series as Boundary Node	4,800
	VSP 8000 Series	n/a
	XA1400 Series	n/a

Maximum Number of SPB Multicast Data I-SIDs

The number of I-SIDs supported varies for Layer 2 and Layer 3 ingress and egress BEBs.

Attribute		Product	Maximum number supported (with and without vIST)
Maximum number of SPB Layer 2 multicast Data I-SIDs Note: Overall limits across Layer 2 VSNs	On Ingress BEB: Dynamic and Static originated Data I-SIDs	VSP 4450 Series	1,000
		VSP 4900 Series	4,000
		VSP 7200 Series	4,000
		VSP 7400 Series as Boundary Node	4000
		VSP 8000 Series	4,000
		XA1400 Series	N/A
	On Egress BEB: Static Data I-SIDs Terminated	VSP 4450 Series	1,000
		VSP 4900 Series	6,000
		VSP 7200 Series	6,000
		VSP 7400 Series as Boundary Node	6,000
		VSP 8000 Series	6,000
		XA1400 Series	N/A
	On Egress BEB: Dynamic data I-SIDs + originating BEB pairs terminated	VSP 4450 Series	1,000
		VSP 4900 Series	6,000
		VSP 7200 Series	6,000
		VSP 7400 Series as Boundary Node	6,000
		VSP 8000 Series	6,000
		XA1400 Series	N/A

Attribute		Product	Maximum number supported (with and without vIST)
Maximum number of SPB Layer 3 multicast Data I-SIDs Note: Overall limits across all Layer 3VSNs/GRT	On Ingress BEB: Dynamic and Static originated Data I-SIDs	VSP 4450 Series	1,000
		VSP 4900 Series	4,000
		VSP 7200 Series	4,000
		VSP 7400 Series as Boundary Node	4,000
		VSP 8000 Series	4,000
		XA1400 Series	N/A
	On Egress BEB: Static Data I-SIDs Terminated	VSP 4450 Series	1,000
		VSP 4900 Series	6,000
		VSP 7200 Series	6,000
		VSP 7400 Series as Boundary Node	6,000
		VSP 8000 Series	6,000
		XA1400 Series	N/A
	On Egress BEB: Dynamic data I-SIDs + originating BEB pairs terminated	VSP 4450 Series	1,000
		VSP 4900 Series	6,000
		VSP 7200 Series	6,000
		VSP 7400 Series as Boundary Node	6,000
		VSP 8000 Series	6,000
		XA1400 Series	N/A

Number of I-SIDs Supported for the Number of Configured IS-IS Interfaces and Adjacencies (NNIs)

The number of I-SIDs supported depends on the number of IS-IS interfaces and adjacencies (NNIs) configured.

The following table shows the number of UNI I-SIDs supported per BEB. UNI I-SIDs are used for Layer 2 VSN, Layer 3 VSN, Transparent-UNI, E-Tree, Switched-UNI and S, G for Multicast.

Number of IS-IS interfaces (NNIs)	Product	I-SIDs with vIST configured on the platform	I-SIDs without vIST configured on the platform
4	VSP 4450 Series	1,000	1,000
	VSP 4900 Series	4,000	4,000
	VSP 7200 Series	4,000	4,000
	VSP 7400 Series	4,000	4,000
	VSP 8000 Series	4,000	4,000
	XA1400 Series	n/a	150
6	VSP 4450 Series	1,000	1,000
	VSP 4900 Series	3,500	4,000
	VSP 7200 Series	3,500	4,000
	VSP 7400 Series	3,500	4,000
	VSP 8000 Series	3,500	4,000
	XA1400 Series	n/a	150
10	VSP 4450 Series	650	1,000
	VSP 4900 Series	2,900	4,000
	VSP 7200 Series	2,900	4,000
	VSP 7400 Series	2,900	4,000
	VSP 8000 Series	2,900	4,000
	XA1400 Series	n/a	150
20	VSP 4450 Series	350	700
	VSP 4900 Series	2,000	4,000
	VSP 7200 Series	2,000	4,000
	VSP 7400 Series	2,000	4,000
	VSP 8000 Series	2,000	4,000
	XA1400 Series	n/a	150
48	VSP 4450 Series	n/a	n/a
	VSP 4900 Series	1,000	2,000
	VSP 7200 Series	1,000	2,000
	VSP 7400 Series	1,000	2,000
	VSP 8000 Series	1,000	2,000
	XA1400 Series	n/a	150

Number of IS-IS interfaces (NNIs)	Product	I-SIDs with vIST configured on the platform	I-SIDs without vIST configured on the platform
72	VSP 4450 Series	n/a	n/a
	VSP 4900 Series	750	1,500
	VSP 7200 Series	750	1,500
	VSP 7400 Series	750	1,500
	VSP 8000 Series	750	1,500
	XA1400 Series	n/a	150
100	VSP 4450 Series	n/a	n/a
	VSP 4900 Series	550	1,100
	VSP 7200 Series	550	1,100
	VSP 7400 Series	550	1,100
	VSP 8000 Series	550	1,100
	XA1400 Series	n/a	150
128	VSP 4450 Series	n/a	n/a
	VSP 4900 Series	450	900
	VSP 7200 Series	450	900
	VSP 7400 Series	450	900
	VSP 8000 Series	450	900
	XA1400 Series	n/a	150
250	VSP 4450 Series	n/a	n/a
	VSP 4900 Series	240	480
	VSP 7200 Series	240	480
	VSP 7400 Series	240	480
	VSP 8000 Series	240	480
	XA1400 Series	n/a	150
Note: Expect longer boot times with high scaled adjacency environments.			

Interoperability Considerations for IS-IS External Metric

BEBs running VOSS 5.0 can advertise routes into IS-IS with the metric type as external. They can also correctly interpret route advertisements with metric type external received via IS-IS. In an SPB network with a mix of products running different versions of software releases, you must take care to ensure that turning on the ability to use metric-type external does not cause unintended loss of connectivity.

Note the following before turning on IS-IS external metric if the SPB network has switches running a release prior to VOSS 5.0:

- There are no special release or product type implications if the switch does not have IP Shortcuts or Layer 3 VSN enabled. For example, this applies to Layer 2 only BEBs and BCBs.
- There are no special release or product type implications if the Layer 3 VSN in which routes are being advertised with a metric-type of external is not configured on the switch.
- If a switch running a VOSS release that is prior to VOSS 5.0 but VOSS 4.2.1 or later, it will treat all IS-IS routes as having metric-type internal, regardless of the metric-type (internal or external) used by the advertising BEB in its route advertisement.
- Switches running VSP 9000 Series release 4.1.0.0 or later will treat all IS-IS routes as having metric-type internal, regardless of the metric-type (internal or external) used by the advertising BEB in its route advertisement.
- Switches running VOSS releases prior to 4.2.1.0 might not correctly install IS-IS routes in a Layer 3 VSN if any routes advertised with metric-type external are advertised in that Layer 3 VSN by other BEBs in the network. Layer 3 VSNs in which there are no routes with an external metric-type will not be impacted. Similar note applies to the GRT.
- Switches running VSP 9000 Series releases prior to 4.1.0.0 might not correctly install IS-IS routes in a Layer 3 VSN if any routes advertised with metric-type external are advertised in that Layer 3 VSN by other BEBs in the network. Layer 3 VSNs in which there are no routes with an external metric-type will not be impacted. Similar note applies to GRT.
- Switches running any ERS 8800 release might not correctly install IS-IS routes in a Layer 3 VSN if any routes advertised with metric-type external are advertised in that Layer 3 VSN by other BEBs in the network. Layer 3 VSNs in which there are no routes with an external metric-type will not be impacted. Similar note applies to GRT.

Recommendations

This section provides recommendations that affect feature configuration.

Pay special attention to the expected scaling of routes in the network and the number of OSPF neighbors in a single VRF when you select configuration values for the **`isis l1-hellointerval`** and **`isis l1-hello-multiplier`** commands on IS-IS interfaces. The default values for these commands work well for most networks, including those using moderately-scaled routes.

VSP 4900 Series, VSP 7200 Series, VSP 7400 Series, and VSP 8000 Series

The default values work well for 16,000 routes and 64 OSPF neighbors in a single VRF. However, in highly-scaled networks, you might need to configure higher values for these commands.

For example, if the total number of non IS-IS routes on a given BEB exceeds 16,000 in combination with approximately 128 OSPF neighbors in a single VRF, you should configure a value of 12 for **`isis l1-hellomultiplier`**, instead of using the default value of 3.

VSP 4450 Series

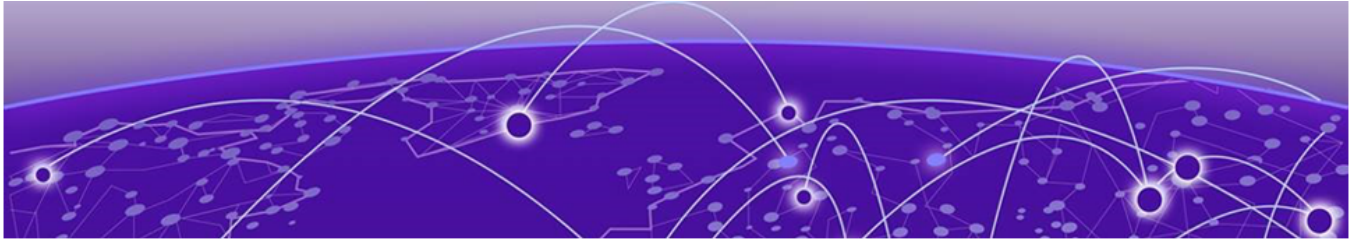
If the total number of non IS-IS routes on a given BEB exceeds 25,000 in combination with approximately 60,000 IS-IS routes that the BEB receives from other BEBs in the network, you should configure a value of 12 for **`isis l1-hellomultiplier`**, instead of using the default value of 3.

VRF Scaling

By default, the system reserves VLAN IDs 4060 to 4094 for internal use.

If you enable both the VRF scaling and the SPBM mode boot configuration flags, the system reserves additional VLAN IDs (3500 to 3998) for internal use.

By default, VRF scaling is disabled and SPBM mode is enabled. When VRF scaling is disabled, you can have a maximum of 24 VRFs.



Important Notices

Unless specifically stated otherwise, the notices in this section apply to all platforms.

ExtremeCloud IQ Support

ExtremeCloud™ IQ provides cloud-managed networking, and delivers unified, full-stack management of wireless access points, switches, and routers. It enables onboarding, configuration, monitoring, troubleshooting, reporting, and more. Using innovative machine learning and artificial intelligence technologies, ExtremeCloud IQ analyzes and interprets millions of network and user data points, from the network edge to the data center, to power actionable business and IT insights, and to deliver new levels of network automation and intelligence.

ExtremeCloud IQ supports the following platforms:

- VSP 4900 Series
- VSP 7400 Series
- XA1400 Series

For the most current information on switches supported by ExtremeCloud IQ, see ExtremeCloud™ IQ Learning What's New.

The switch supports a zero touch connection to ExtremeCloud IQ. Zero touch deployment is used to deploy and configure a switch using ExtremeCloud IQ.

The switch software integrates with ExtremeCloud IQ using IQAgent.

For more information, see *VOSS User Guide*.

For more information about ExtremeCloud IQ, go to https://www.extremenetworks.com/support/documentation/extremecloud-iq/.

Compatibility with ExtremeCloud IQ - Site Engine

To understand which versions of ExtremeCloud IQ - Site Engine are compatible with this Network Operating System release on different hardware platforms, see Extended Firmware Support.

Feature-Based Licensing

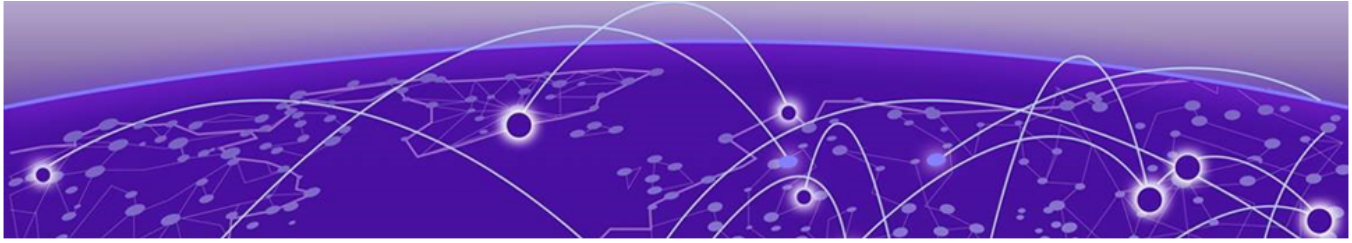
The following table provides information on the feature-licensing models available. For more information about licensing including feature inclusion, order codes, and how to load a license file, see *VOSS User Guide*.

Table 32: License models

Product	License model
VSP 4450 Series VSP 4900 Series VSP 7200 Series VSP 7400 Series VSP 8200 Series VSP 8400 Series	Support a perpetual licensing model that includes Base and Premier licenses. Premier licenses enable advanced features not available in the Base License. Note: VSP 7200 Series supports an additional Port license.
XA1400 Series	Supports a subscription-based licensing model, in 1, 3, and 5 year durations, for two bandwidth tiers. All subscription licenses support all features on the switch, plus software upgrades and technical support services entitlement during the license term.

Memory Usage

These switches intentionally reboot when memory usage on the switch reaches 95%.



Known Issues and Restrictions

This section details the known issues and restrictions found in this release. Where appropriate, use the workarounds provided.

Known Issues

This section identifies the known issues in this release.

Known Issues for 8.9

Issue number	Description	Workaround
	HTTPS connection fails for CA-signed certificate with certificate inadequate type error on FF.	Ensure End-Entity, Intermediate CA and Root CA certificates are all SHA256 based and RSA2048 key signed, and Extended key usage field is set to TLS webserver Auth only for subject and root. For intermediate, it must be set with other required bits to avoid this issue. Add the root, intermediate CAs in the trust store of the browser for accessing the EDM with HTTPS.
VOSS-1265	On the port that is removed from a T-UNI LACP MLT, non T-UNI configuration is blocked as a result of T-UNI consistency checks.	When a port is removed from a T-UNI LACP MLT, the LACP key of the port must be set to default.
VOSS-1278	SLA Mon tests fail (between 2% and 8% failure) between devices when you have too many agents involved with scaled configurations.	This happens only in a scaled scenario with more than seven agents, otherwise the failure does not occur. The acceptable failure percentage is 5%, but you could see failures of up to 8%.

Issue number	Description	Workaround
VOSS-1280	The following error message occurs when performing shutdown/no-shutdown commands continuously: `IO1 [05/02/14 06:59:55.178:UTC] 0x0011c525 00000000 GlobalRouter COP-SW ERROR vsp4kTxEnable Error changing TX disable for SFP module: 24, code: -8`	None. When this issue occurs, the port in question can go down, then performs a shutdown/no-shutdown of the port to bring it up and resumes operation.
VOSS-1285	CAKs are not cleared after setting the device to factory-default.	None. Currently this is the default behavior and does not affect functionality of the MACsec feature.
VOSS-1288	Shutting down the T1 link from one end of the link does not shut down the link at the remote end. You could experience traffic loss if the remote side of the link is not shut down.	This issue occurs only when a T1 SFP link from one end is shutdown. Enable a dynamic link layer protocol such as LACP or VLACP on both ends to shut the remote end down too. As an alternative, administratively disable both ends of the T1 SFP link to avoid the impact.
VOSS-1289	On a MACsec-enabled port, you can see delayed packets when the MACsec port is kept running for more than 12 hours. This delayed packet counter can also increment when there is complete reordering of packets so that the application might receive a slow response. But in this second case, it is a marginal increase in the packet count, which occurs due to PN mismatch sometimes only during Key expiry, and does not induce any latency.	None.
VOSS-1309	You cannot use EDM to issue **`ping`** or **`traceroute`** commands for IPv6 addresses.	Use CLI to initiate **`ping`** and **`traceroute`** commands.
VOSS-1310	You cannot use EDM to issue **`ping`** or **`traceroute`** commands for IPv4 addresses.	Use CLI to initiate **`ping`** and **`traceroute`** commands.
VOSS-1312	On the VSP 8400 Series 40-gigabit ports, the small metallic fingers that surround the ports are fragile and can bend out of shape during removal and insertion of the transceivers. When the fingers are bent, they prevent the insertion of the QSFP+ transceiver.	Insert the QSFP+ carefully. If the port becomes damaged, it needs to be repaired.

Issue number	Description	Workaround
VOSS-1335	In an IGMP snoop environment, after dynamically downgrading the IGMP version to version 2 (v2), when you revert back to version 3 (v3), the following is observed: • The multicast traffic does not flow. • The sender entries are not learned on the local sender switch. • The Indiscard packet count is incremented on the **`show int gig error`** statistics command.	Use a v3 interface as querier in a LAN segment that has snoop-enabled v2 and v3 interfaces.
VOSS-1344	In EDM, you cannot select multiple 40 gigabit ports or a range of ports that includes 40 gigabit ports to graph or edit. You need to select them and edit them individually.	None.
VOSS-1349	On EDM, the port LED for channelized ports only shows the status of sub-port #1, but not the rest of the sub-ports. When you remove sub-port #1, and at least one other sub-port is active and online, the LED color changes to amber, when it should be green because at least one other sub-ports is active and online. The LED only shows the status of sub-port #1.	None.
VOSS-1354	An intermittent link-flap issue can occur in the following circumstance for the copper ports. If you use a crossover cable and disable auto-negotiation, the port operates at 100 Mbps. A link flap issue can occur intermittently and link flap detect will shut down the port.	Administratively shutdown, and then re-enable the port. Use auto-negotiation. Disabling auto-negotiation on these ports is not a recommended configuration.
VOSS-1358	Traffic is forwarded to IGMP v2 SSM group, even after you delete the IGMP SSM-map entry for the group.	If you perform the delete action first, you can recreate the SSM-map record, and then disable the SSM-map record. The disabled SSM-map record causes the receiver to timeout because any subsequent membership reports that arrive and match the disabled SSM-map record are dropped. You can delete the SSM-map record after the receivers time out.
VOSS-1359	The 4 byte AS confederation identifier and peers configuration are not retained across a reboot. This problem occurs when 4 Byte AS is enabled with confederation.	Reconfigure the 4 byte AS confederation identifier and peers on the device, and reboot.

Issue number	Description	Workaround
VOSS-1360	After you enable enhanced secure mode, and log in for the first time, the system prompts you to enter a new password. If you do not meet the minimum password requirements, the system displays the following message: `Password should contain a minimum of 2 upper and lowercase letters, 2 numbers and 2 special characters like !@#$%^*(). Password change aborted. Enter the New password:` The system output message does not display the actual minimum password requirements you need to meet, which are configured on your system. The output message is an example of what the requirements need to meet. The actual minimum password requirements you need to meet are configured on your system by the administrator.	None.
VOSS-1367	The configuration file always includes the router ospf entry regardless of whether OSPF is configured. This line does not perform any configuration and has no impact on the running software.	None.
VOSS-1368	When you use Telnet or SSH to connect to the switch, it can take up to 60 seconds for the log in prompt to appear. However, this situation is very unlikely to happen, and it does not appear in a standard normal operational network.	Do not provision DNS servers on a switch to avoid this issue altogether.
VOSS-1370	If you configure egress mirroring on NNI ports, you do not see the MAC-in-MAC header on captured packets.	Use an Rx mirror on the other end of the link to see the packets.
VOSS-1371	A large number of IPv6 VRRP VR instances on the same VLAN can cause high CPU utilization.	Do not create more than 10 IPv6 VRRP VRs on a single VLAN.
VOSS-1389	If you disable IPv6 on one RSMLT peer, the switch can intermittently display `COP-SW ERROR` and `RCIP6 ERROR` error messages. This issue has no impact.	None.
VOSS-1390	If you delete the SPBM configuration and re-configure SPBM using the same nickname but a different IS-IS system ID without rebooting, the switch displays an error message.	Reboot the switch after you delete the SPBM configuration.
VOSS-1403	EDM displays the user name as Admin, even though you log in using a different user name.	None.

Issue number	Description	Workaround
VOSS-1406	When you re-enable insecure protocols in the CLI SSH secure mode, the switch does not display a warning message.	None.
VOSS-1418	EDM displays the IGMP group entry that is learned on a vIST MLT port as TX-NNI.	Use CLI to view the IGMP group entry learned on a vIST MLT port.
VOSS-1428	When port-lock is enabled on the port and re-authentication on the EAP client fails, the port is removed from the RADIUS-assigned VLAN. This adds the port to the default VLAN and displays an error message. This issue has no impact.	The error message is incorrect and can be ignored.
VOSS-1433	When you manually enable or disable IS-IS on 40 Gbps ports with CR4 direct attach cables (DAC), the port bounces one time.	Configure IS-IS during the maintenance period. Bring the port down, configure the port and then bring the port up.
VOSS-1438	In a rare scenario in Simplified vIST configuration when vIST state is toggled immediately followed by vIST MLT ports are toggled, one of the MLT ports will go into blocking state resulting in failure to process data packets hashing to that link.	Before enabling vIST state ensure all vIST MLT ports are shut and re-enabled after vIST is enabled on the DUT.
VOSS-1440 VOSS-1441	When you configure a scaled Layer 3 VSN (24 Layer 3 VSN instances), route leaking from GRT to VRF on the local DUT does not happen. The switch displays an incorrect error message: `Only 24 Layer 3 VSNs can be configured.`	None.
VOSS-1463 VOSS-1471	When you use Fabric Extend over IP (FE-IP) and Fabric Extend over Layer 2 VLAN (FE-VID) solution, if you change the ingress and egress .1p map, packets cannot follow correct internal QoS queues for FE tunnel to FE tunnel, or FE tunnel to regular NNI traffic.	Do not change the default ingress and egress .1p maps when using Fabric Extend. With default ingress and egress .1p maps, packets follow the correct internal QoS when using the Fabric Extend feature.
VOSS-1473	If the I-SID associated with a Switched UNI or Fabric Attach port does not have a platform VLAN association and you disable Layer 2 Trusted, then the non IP traffic coming from that port does not take the port QoS and still uses the .1p priority in the packet.	None.
VOSS-1530	If you improperly close an SSH session, the session structure information does not clear and the client can stop functioning.	Disable and enable SSH.
VOSS-1584	The **`show debug-file all`** command is missing.	None.

Issue number	Description	Workaround
VOSS-1585	The system does not generate a log message, either in the log file or on screen, when you run the **flight-recorder** command.	None.
VOSS-1608	If you use an ERS 4850 FA Proxy with a VOSS or Fabric Engine FA Server, a mismatch can exist in the show output for tagged management traffic. The ERS device always sends traffic as tagged. The VOSS or Fabric Engine FA Server can send both tagged and untagged. For untagged, the VOSS and Fabric Engine FA Servers send VLAN ID 4095 in the management VLAN field of the FA element TLV. The ERS device does not recognize this VLAN ID and so still reports the traffic as tagged.	There is no functional impact.
VOSS-1706	EAPOL: Untagged traffic is not honoring the port QOS for Layer 2 trusted/ Layer 3 untrusted. This issue is only seen on EAPOL-enabled ports.	None.
VOSS-2014	IPv6 MLD Group is learned for Link-Local Scope Multicast Addresses. This displays additional entries in the Multicast routing tables.	None.

Issue number	Description	Workaround

VOSS-2033	The following error messages appear when you use the **shutdown** and **no shutdown** commands on the MLT interface with ECMP and BGP+ enabled:
	`CP1 [01/23/16 11:10:16.474:UTC] 0x00108628 00000000 GlobalRouter RCIP6 ERROR rcIpReplaceRouteNotifyIpv6:FAIL ReplaceTunnelRec conn_id 2`
	`CP1 [12/09/15 12:27:02.203:UTC] 0x00108649 00000000 GlobalRouter RCIP6 ERROR ifyRpcOutDelFibEntry: del FIB of Ipv6Route failed with 0: ipv6addr: 201:6:604:0:0:0:0:0, mask: 96, nh: 0:0:0:0:0:0:0:0 cid 6657 owner BGP`
	`CP1 [12/09/15 12:20:30.302:UTC] 0x00108649 00000000 GlobalRouter RCIP6 ERROR ifyRpcOutDelFibEntry: del FIB of Ipv6Route failed with 0: ipv6addr: 210:6:782:0:0:0:0:0, mask: 96, nh: fe80:0:0:0:b2ad:aaff:fe55:5088 cid 2361 owner OSPF`
		Disable the alternate path.

VOSS-2036	IPsec statistics for the management interface do not increment for inESPFailures or InAHFailures.	None.
VOSS-2117	If you configure static IGMP receivers on an IGMPv3 interface and a dynamic join and leave are received on that device from the same destination VLAN or egress point, the device stops forwarding traffic to the static receiver group after the dynamic leave is processed on the device. The end result is that the IGMP static groups still exist on the device but traffic is not forwarded.	Disable and re-enable IGMP Snooping on the interface.
VOSS-2128	EAP Security and Authentication EDM tabs display additional information with internal values populated, which is not useful for the end user.	There is no functional impact. Ignore the additional information in EDM. Use the CLI command **show eapol port interface** to see port status.
VOSS-2207	You cannot configure an SMTP server hostname that begins with a digit. The system displays the following error: `Error: Invalid IP Address or Hostname for SMTP server`	None.

Issue number	Description	Workaround
VOSS-2208	While performing CFM Layer 2 traceroute between two BEBs using a transit BCB, the transit BCB hop is not seen, if the transit BCB has ISIS adjacencies over FE l3core with both source BEB and destination BEB.	None.
VOSS-2253	Trace level command does not list module IDs when '**?**' is used.	To get the list of all module IDs, type **trace level,** and then press **Enter.**
VOSS-2285	When on BEB, continuously pinging IPv6 neighbor address using CLI command **ping -s**, ping packets do not drop, but instead return no answer messages.	Restart the ping. Avoid intensive CPU processing.
VOSS-2333	Layer 2 ping to Virtual BMAC (VBMAC) fails, if the VBMAC is reachable using Layer 2 core.	None.
VOSS-2418	When you configure and enable the SLA Mon agent, the SLA Mon server is able to discover it but the agent registration on the switch does not occur.	None.
VOSS-2422	When a BGP Neighbor times out, the following error message occurs: `CP1 [03/11/16 13:43:39.084:EST] 0x000b45f2 00000000 GlobalRouter SW ERROR ip_rtdeleteVrf: orec is NULL!`	There is no functional impact. Ignore the error message.
VOSS-25476	DvR host entries are visible on DvR Controllers after you issue the **clear dvr host-entries** command or disable all DvR Controllers within the domain.	Choose one of the following workarounds: • Disable and reenable DvR. • Disable and reenable IS-IS. • Reenable DvR Controllers within the domain.
VOSS-2859	You cannot modify the port membership on a protocol-based VLAN using EDM, after it has been created.	Use CLI to provision the port membership on the protocol-based VLAN or delete the protocol-based VLAN, and then re-create it with the correct port member setting.
VOSS-3393	When the SLA Mon agent IP is created on a CLIP interface, the switch provides the CLIP-id as the agent MAC.	There is no functional impact. Use different CLIP IDs to differentiate the SLA Mon agents from the SLA Mon server.
VOSS-4255	If you run IP traceroute from one end host to another end host with a DvR Leaf in between, an intermediate hop will appear as not responding because the Leaf does not have an IP interface to respond. The IP traceroute to the end host will still work.	None.

Issue number	Description	Workaround
VOSS-4728	If you remove and recreate an IS-IS instance on an NNI port with auto-negotiation enabled in addition to vIST and R/SMLT enabled, it is possible that the NNI port will briefly become operationally down but does recover quickly. This operational change can lead to a brief traffic loss and possible reconvergence if non-ISIS protocols like OSPF or BGP are also on the NNI port.	If you need to remove and recreate an IS-IS instance on an auto-negotiation enabled NNI port that also has non-ISIS traffic, do so during a maintenance window to minimize possible impact to other non-ISIS traffic.
VOSS-4840	If you run the **`show fulltech`** command in an SSH session, do not disable SSH on the system. Doing so can block the SSH session.	None.
VOSS-4912	The VSP 4450 Series does not advertise an LLDP Management TLV.	None.
VOSS-5130	Disabling and immediately enabling IS-IS results in the following log message: `PLSBFIB ERROR: /vob/cb/nd_protocols/plsb/lib/plsbFib.cpp(line 1558) unregisterLocalInfo() local entry does not exist. key(0xfda010000fffa40)`	There is no functional impact. Ignore the error message.
VOSS-5159 & VOSS-5160	If you use a CLIP address as the management IP address, the switch sends out 127.1.0.1 as the source IP address in both SMTP packets and TACACS+ packets.	None.
VOSS-5173	A device on a DvR VLAN cannot authenticate using RADIUS if the RADIUS server is on a DvR VLAN on a DvR Leaf using an in-band management IP address.	Place the RADIUS server in a non-DvR VLAN off a DvR Leaf or DvR Controller.
VOSS-5331	When you enable FHS ND inspection on a VLAN, and an IPv6 interface exists on the same VLAN, the IPv6 host client does not receive a ping response from the VLAN.	None.
VOSS-5603	In a scaled DvR environment (scaled DvR VLANs), you could see a higher CPU utilization while deleting a DvR leaf node from the DvR domain (no dvr leaf). The CPU utilization stays higher for several minutes on that node only and then returns to normal after deleting all the internal VLANs on the leaf node.	It is recommended to use a maintenance window when removing leaf(s) from a DvR domain.

Issue number	Description	Workaround
VOSS-5627	The system does not currently restrict the number of VLANs on which you can simultaneously configure NLB and Directed Broadcast, resulting in resource hogging.	Ensure that you configure NLB and Directed Broadcast on not more than 100 VLANs simultaneously, assuming one NLB cluster for each VLAN. Also, ensure that you configure NLB on a VLAN first, and then Directed Broadcast, so as to not exhaust the NLB and Directed Broadcast shared resources. The shared resources are NLB interfaces and VLANs with Directed Broadcast enabled. The permissible limit for the shared resources is 200.
VOSS-6189	When you connect to EDM using HTTPS in Microsoft Edge or Mozilla Firefox, the configured values for the RADIUS KeepAliveTimer and CFM SBM MepId do not appear.	Use Internet Explorer when using an HTTPS connection.
VOSS-6822	If the IPsec/IKE software used in the Radius server side is strongSwan, there is a compatibility issue between the network operating system (NOS) and strongSwan in terms of IPv6 Digicert (IKEv1/v2) authentication.	None.
VOSS-6928	On VSP 8000 Series platforms, IPv4 Filters with redirect next hop action do not forward when a default route is not present or a VLAN common to ingress VLAN of the filtered packet is not present.	Configure a default route if possible.
VOSS-7139	DHCPv6 Snooping is not working in an SPB network as the DHCPv6 Snooping entries are not being displayed.	Administrator should add manual entries.
VOSS-7457	The switch can experience an intermittent traffic loss after you disable a Fabric Extend tunnel.	Bounce the tunnel between the devices.
VOSS-7472	EDM shows incorrect guidance for ACL TCP flag mask. EDM reports `0…63` as hexadecimal. CLI correctly shows `<0-0x3F | 0-63> Mask value <Hex | Decimal>`. This is a display issue only with no functional impact.	Use CLI to see the correct unit values.
VOSS-7495	The VSP 4450 Series CLI Help text shows an incorrect port for **`boot config flags linerate-directed-broadcast`**. The Help text shows 1/48. The correct port is 1/46.	None
VOSS-8424	A fragmented ping from an external device to a switch when the VLAN IP interface is tied to a non-default VRF fails.	None.

Issue number	Description	Workaround
VOSS-8516	Secure Copy (SCP) cannot use 2048-bit public DSA keys from Windows.	Use 1024/2048-bit RSA keys or 1024-bit DSA keys.
VOSS-9516	When you connect to EDM using HTTPS, you can see multiple `SSL negotiation with client successful` messages during your EDM session. The system displays this message, each time a successful SSL_Handshake occurs between the web browser and the web server. The log file cannot show as many messages as the console and the timing between messages can be different because logging does not occur in real time.	None.
VOSS-9621	On these products, 1G Copper Pluggable auto-negotiation is always enabled after a reboot, despite configuration settings.	If you do not want to use auto-negotiation, disable it after the reboot.
VOSS-9921	Bootup redirection timeout is longer than the UNI port (SMLT) unlock timer. If both vIST nodes boot together in factory default configuration fabric mode or without a nickname, the vIST ports will not enable for up to 4 minutes. During the delay the nickname server is unreachable and vIST is not online.	None.
VOSS-10380	If you enable and configure IPv6 Source Guard and EAPoL on a port, and create and configure a Guest VLAN on the same port without DHCP Snooping and ND-inspection, no error is shown. The port is not added to the Guest VLAN.	Configure DHCP Snooping and ND-inspection are not configured on the Guest VLAN.
VOSS-10381	If you enable and configure IPv6 Source Guard and EAPoL MHSA on a port, and create and configure RAVs for Non-EAP clients on the same port without DHCP Snooping and ND-inspection, no error is shown. The client displays as authenticated into RAV, even when port is not a member of RAV.	None.
VOSS-10412	Removal of the QSFP+ to SFP+ adapter with a 10G pluggable is not detected on the VSP 8404 and VSP 8404C when in non channelized mode.	The QSFP+ to SFP+ adapter and detection works only on ports with channelization enabled.
VOSS-10574	IS-IS sys-name output is not truncated for **`show isis spbm nick-name`** or **`show ip route`** commands. If a long character sys-name is in use, the full sys-name display can cause misalignment of the output columns.	None.

Issue number	Description	Workaround
VOSS-10815	DvR over SMLT: Traffic is lost at failover on SMLT towards ExtremeXOS or Switch Engine switches. DvR hosts are directly connected to the DvR controllers vIST pair on SMLT LAG and switched-UNIs are dynamically added using Fabric Attach. Only occurs when the access SMLT is LACP MLT and all the ports in the MLT are down. When all ports in the MLT down and an ARP request is received over an NNI link, there is no physical port that can be associated with the ARP request. The ARP entry is learned against NNI link, and MAC syncs from vIST peer or from a non-vIST peer when bouncing vIST.	None.
VOSS-10891	DvR leaf vIST: Wrong rarSmltCheckSmltPeerMac MLT warning displays when the peer vIST MAC address is learned from local	None. rarSmltCheckSmltPeerMac MLT warning has no functional impact. You can ignore the error message.
VOSS-11895	In a vIST SMLT environment where streams are both local and remote, if source and receiver port links are removed and reinserted several times, eventually traffic will not be forwarded to local single-homed receivers on one peer if the traffic is ingressing from the vIST peer over the NNI link. If the stream ingresses locally, it is received by the local UNI receivers.	Disable and re-enable Fabric Multicast (**`spbm <1-100> multicast enable`**) on the source VLAN to be able to delete the streams and come back in properly.
VOSS-11943	This release does not support per-port configuration of Application Telemetry. Because the feature is enabled globally and VSP 7432CQ supports 32 100 Gbps ports, an undesirable condition could be encountered when an exceeded amount of Application Telemetry mirrored packets are sent to the collector.	None.
VOSS-12330	When accessing the on-switch RESTCONF API documentation in a web browser, the page does not render correctly.	Ensure you include the trailing slash (/) in the URL: `http(s)://<ip-address>:8080/apps/restconfdoc/`. For more information, see *VOSS User Guide*.
VOSS-12405	To reach a VM, all front panel traffic must travel through an Insight port, which is a 10 Gbps port. If front panel port traffic is over 10 Gbps, this situation represents an over subscription on the Insight port and some of the packets will be dropped. As a result, ExtremeCloud IQ - Site Engine can lose connectivity to the Analytics engine if Application Telemetry is enabled.	None.

Issue number	Description	Workaround
VOSS-13159	The ixgbevf Ethernet device driver within the TPVM does not correctly handle the interface MTU setting. Specifically, if you configure the interface in SR-IOV mode, packets larger than the MTU size are allowed.	To avoid this problem, configure the desired MTU size on both the relevant front-panel port and Insight port from the NOS CLI.
VOSS-13463	Out port statistics for MLT port interfaces are not accurate.	Use the command `show io nic-counters` to display detailed port stats and error info on XA1400 Series.
VOSS-13667	An intermittent issue in SMLT environments, where ARPs or IPv6 neighbors are resolved with delay can cause a transient traffic loss for the affected IPv6 neighbors. The situation auto-corrects.	None.
VOSS-13680	Interface error statistics display is inaccurate in certain scenarios.	Use the command `show io nic-counters` to display detailed port stats and error info on XA1400 Series.
VOSS-13681	QoS: **`show qos cosq-stats cpu-port`** command output is not supported.	Use the command `show io cpu-cosq-counters` to display detailed cosq-stats on XA1400 Series.
VOSS-13693	QoS: Traffic can egress out of the queue at a different ratio than the default configuration. After the guaranteed traffic rate is served to all egress port queues, any excess bandwidth is shared equally to all queues instead of distributing on weight assigned to each queue.	None.
VOSS-13717 VOSS-14393 VOSS-14972	Link on remote side doesn't go down after admin shut on XA1400 while using 10G DAC or a 4x10 - 40 G breakout DAC. On the XA1400 side link goes down but Link LED shows as up. Both 10G and 4x10G DAC are not fully supported because of this issue	None for DAC and breakout cables. Because of this issue, the following optical transceivers are not supported: • AA1404036-E6 • AA1404042-E6 • C9799X4-5M
VOSS-13794	You cannot use SFTP to transfer files larger than 2 GB to the switch.	Use SCP.
VOSS-13904 VOSS-13932 VOSS-16503	VSP 4900 Series has 2 GB memory in a 64-bit system so the RESTCONF VLAN scaling number is smaller than on VSP 7400 Series, which has 16 GB physical memory. Using RESTCONF on VSP4900-48P or VSP4900-24S reduces the number of port-based VLANs on those platforms: • 2,000 for VSP4900-48P with RESTCONF • 1,000 for VSP4900-24S with RESTCONF	None.

Issue number	Description	Workaround
VOSS-13947	After you enable MSTP-Fabric Connect Multi Homing (**`spbm 1 stp-multi-homing enable`**), you cannot view the configuration, role, or statistics for the STP virtual port.	None.
VOSS-13974	When an 8408QQ ESM has more than two channelized ports and is rebooted, the MKA MACsec sessions on the other cards in the same box could toggle. This issue is not seen if one or two ports are channelized on the same card.	None.
VOSS-14150	CLI remote console might stop wrapping text after some usage.	Reset the CLI window or open a new remote console window.
VOSS-14391	On an VSP 8404C switch using an 8424XT ESM, on a port with MACsec connectivity, if you set Auto-Negotiation advertisements to 1000-full, and then subsequently set the advertisement to 10000-full, the link will not come up.	To avoid this issue, set the Auto-Negotiation advertisements directly to 10000-full. If you have experienced the issue, shut the port down and bring it back up.
VOSS-14494	Layer 2 VSN and Layer 3 VSN UNI to NNI traffic between two Backbone Edge Bridges does not hash to different ports of a MLT network-to-network interface. MLT hashing for XA1400 devices occurs after the mac-in-mac encapsulation is done. The hash keys used are the Backbone destination and Backbone source MAC addresses (BMAC DA and BMAC SA) in the Mac-in-Mac header. Even for the Transit BCB case on XA 1400 devices for NNI to NNI traffic, the MLT hash keys used are the Backbone destination and Backbone source MAC addresses (BMAC DA and BMAC SA) in the Mac-in-Mac header.	None.

Issue number	Description	Workaround
VOSS-14515	Console output errors and warnings are shown during an XA1400 Series reboot, such as: • error: no such device: ((hd0,gpt1)/EFI/BOOT)/EFI/BOOT/grub.cfg. error: file `/EFI/BOOT/grubenv' not found • error: no suitable video mode found. • [0.727012] ACPI: No IRQ available for PCI Interrupt Link [LNKS]. Try pci=noacpi or acpi=off • exportfs: can't open /etc/exports for reading • KCORE: WARNING can't find /boot/b/uImage-gemini.bin. No kexec kernel will be configured.	None. The errors or warnings are host OS or guest OS related with no functional impact and can be ignored.
VOSS-14597	Ping (originated from local CP) fails for jumbo frames on Layer 3 VSN interface.	None.
VOSS-14616	Seeing Queue buffer usage logs when changing the logical interface source IP with 64 tunnels. When changing the source IP with 64 tunnels, seeing "GlobalRouter CPU INFO CPP: 60 percent of fbufs are in use: 0 in Tx queue,1843 in RxQueue0 0 in RxQueue1 0 in RxQueue2 0 in RxQueue3 0 in RxQueue4 0 in RxQueue5 0 in RxQueue6 0 in RxQueue7 ".	None.
VOSS-14805 VOSS-15305	The following transceivers are not supported on XA1400 Series switches: • 10 Gb Bidirectional 40 km SFP+ Module (10GB-BX40-D and 10GBBX40-U) • 1000BASE-BX10 Bidirectional 10 km DDI SFP Modules (AA1419069-E6 and AA1419070-E6)	Use only supported transceivers.
VOSS-15079	The Extreme Networks 10 meter SFP+ passive copper DAC (Model Number 10307) does not function on ports 2/3 and 2/4 of the VIM5-4X.	Use the Extreme Networks SFP+ active optical DAC (Model Number AA1403018-E6) with the VIM5-4X.
VOSS-15112	BFD sessions associated with static routes could flap one time before remaining up, when shutting down and bringing back up a BFD peer port.	None. Ignore the extra BFD session flap.

Issue number	Description	Workaround
VOSS-15313	On a VSP 8404C switch using an 8424XT ESM, on a link with MACsec connectivity on both ends, and Auto-Negotiation advertisements set to 10000-full, the link will not come back up if the ESM is hot-swapped or the slot is reset.	To avoid this issue, disable MACsec prior to the hot swap or reset, and then re-enable. If you have experienced the issue, shut either one of the link ports down and bring it back up.
VOSS-15391	An SNMP walk on the **`rcIgmpSnoopTraceTable`** table will fail with an **`OID not increasing`** error. CLI and EDM are unaffected by this issue.	None.
VOSS-15463	XA1440 and XA1480 switches can experience intermittent Link Up and Link Down transitions on the 10/100/1000BASE-T Ethernet ports upon booting.	No workaround, but there is no functional impact.
VOSS-15541	You can experience temporary traffic loss when shutting down an LACP SMLT port (and therefore causing the local SMLT to go down), in a network with scaled Multicast traffic over an SPB cloud, while the datapath processes all dpm letter messages during LCAP recovery. This slow LACP recovery situation is only seen with scaled Multicast traffic over an SPB cloud.	Use static MLTs.
VOSS-15812	Layer 3VSN IPv4 BGP (and static) routes having their next-hops resolved using IS-IS routes could result in traffic loss.	Choose the following workarounds, based on your deployment and needs: • Use static routes to reach the loopbacks used as BGP peers, (static routes having better preference than IS-IS); use static routes with next-hops reachable on the UNI side (L2VSN). • Use OSPF to reach the loopbacks used as BGP peers, but take care to ensure that the OSPF route towards the BGP peer is chosen as the “best route” (as IS-IS has a better preference than OSPF). There are several ways to accomplish this—either don’t redistribute that route in IS-IS if it is not needed, or control the redistribution with a route-map, etc. • Have BGP peers reachable directly using a C-VLAN; do not use loopback interfaces as BGP peer addresses. • If none of the above workaround scenarios are suitable for your deployment, do not use internal Border Gateway Protocol (iBGP) peering.

Issue number	Description	Workaround
VOSS-15878	VSP 4900 Series, VSP 7400 Series do not boot with just the serial console cable connected and no terminating device, for example, a terminal server, PC, or Mac.	Either attach terminal equipment or disconnect the console cable.
VOSS-16221	Layer 2 ping does not work for packets larger than 1300 on an XA1400 Series.	Use Layer 2 ping with packets smaller than 1300 bytes.
VOSS-16365	Running the command **show pluggable-optical-module detail** on an XA1400 Series device is highly CPU intensive to read and reply with the EEPROM details. Due to a delay in ethtool response, a watchdog miss event can occur and the event is recorded in the /intflash/wd_stats/1/wd_stats.ssio.1.log file. This scenario occurs more often if 10Gb SFP+ optics with DDM capability are installed.	None. The high CPU usage and response delay for this command is expected and cannot be resolved. No console log is generated. When the scenario occurs, the Watchdog outage is approximately 5 seconds.
VOSS-16436	Using the console connection on an XA1400 Series device while running a show command with large data output can result in drops of processing control packets.	Use Telnet or SSH connectivity instead of console connection.
VOSS-16951	On a VSP4900-48P, VSP4900-24S and VSP 7400 Series devices, if you run the **show boot config sio** CLI command before you have configured the baud rate, the output of the command is empty.	Configure the baud rate before you run the **show boot config sio** command. The only supported baud rate for these devices is 115200.
VOSS-16971	On VSP4900-24S, VSP4900-24XE, andVSP4900-12MXU-12XE devices, and on the VIM5-4XE, if a copper SFP is plugged in with the cable inserted and the remote end is also plugged in, the peer box could see a link flap and take 6-8 seconds to link up.	First, plug in the SFP, and then insert the cable. The link up then happens in 3-4 seconds.
VOSS-17002	For ingress packets that are larger than the system MTU size on XA1400 Series ports 1/1 through 1/4, error counters do not increment in the **show interfaces gigabitethernet error** CLI command.	Use the **show io nic-counters** CLI command to verify if the tx_error counters are getting incremented. If they are getting incremented, the packets are getting dropped at egress. If they are not getting incremented, the packets are getting forwarded.
VOSS-17523	If an FE tunnel goes down between two connected XA1400 Series devices, an MTU Warning console message is logged if a ping request is issued while the tunnel is down.	You can safely ignore this warning message.

Issue number	Description	Workaround
VOSS-17567	Do not use the inter-vrf /32 static routes defined with a next-hop IP address that resides in a different destination next-hop-vrf context.	None.
VOSS-18023	The management port on the 5520 switch does not support Auto-MDIX (the automatic detection of transmit and received twisted pairs). As a best practice, enable the default auto-negotiation setting on the management port. Because the management port does not support Auto-MDIX, when auto-negotiation is disabled, a crossover cable might be necessary to have the port link up and pass traffic. Note: If the peer device supports Auto-MDIX, then either a straight through or crossover will work. The issue occurs only if both ends of the connection do not support Auto-MDIX.	None.
VOSS-18238	When a management VLAN with DHCP is used to reach a RADIUS server, and the RADIUS server cannot be reached, the system waits for 15 minutes before attempting to reach the RADIUS server again. This is true even if the RADIUS server becomes reachable before the 15 minutes have elapsed.	None.
VOSS-18278	On the 5520 switch, when you make any change relating to port speed, the port statistics are cleared. This is applies to all front panel fiber and copper ports as well as VIM ports. The following are examples of changes relating to port speed: • Changing the auto-negotiation configuration settings on a copper port • Different negotiated speed on a copper port • Changing out an optical device for one having a different speed, for example changing from 1 Gb to 10 Gb	None.

Issue number	Description	Workaround
VOSS-18360	This is an intermittent issue on the VSP 7400 Series with no impact to functionality, ISIS is disabled while the **show fulltech** command is running on a telnet session. Due to this the fulltech command will not find the expected I-SID value, as it is removed by the **no isis** command.	None.
VOSS-19212	After upgrading a VSP 7432CQ switch to VOSS 8.2.5 and rebooting, the presence of a faulty power supply unit will cause the system to terminate. A message in the debug log will report that the software could not read the contents of the power supply's EEPROM (*carbonatelib_ps_read_eeprom* operation).	Replace the power supply unit in the switch.
VOSS-19260	Port mirroring does not work on port 1/s1 of VSP 7400-48Y if the connection type is OVS/SR-IOV.	Use a connection type of VT-d for port 1/s1.
VOSS-19827	LLDP IPv6 neighbors do not display in EDM. LLDP IPv6 is only supported in CLI.	To display LLDP IPv6 neighbors, use the **show lldp neighbor summary** command.
VOSS-20115	You cannot change the management VLAN interface discovered on XA1400 Series in ExtremeCloud IQ - Site Engine as part of Zero Touch Provisioning Plus (ZTP+). XA1400 Series does not support the OOB interface. You can only use the discovered interface and change other configuration values.	On XA1400 Series, use the discovered interface within ExtremeCloud IQ - Site Engine for basic onboarding. Use either ExtremeCloud IQ - Site Engine or CLI to complete the remaining configuration.
VOSS-20200	For VSP 8404C, if you remove and insert an Ethernet Switch Module (ESM), which has NNI ports that are members in an LACP-dynamic MLT, some ports are intermittently missing in the dynamic MLT after the ESM insertion. Traffic is affected for streams that need to exit the NNI links over the dynamic MLT for the missing ports. Rebooting the switch returns the ports to the dynamic MLT.	None.
VOSS-20227	On XA1400 Series, the VOSS OS time does not synchronize to the real time clock (RTC) after system reboot. After the switch completely boots, NTP synchronization occurs and the VOSS OS has the correct time. The OS time can be incorrect for up to two minutes after system reboot.	None.

Issue number	Description	Workaround
VOSS-20455	As the switch starts, it can display the following log messages due to incomplete initialization of the management stack when trying to send the first RADIUS packet: • `1 2021-02-17T23:32:16.810+01:00 DIST-H9-E3.1-01 CP1 - 0x000a45ae - 00000000 GlobalRouter RADIUS ERROR rad_sendRequest: unable to send a UDP packet. error 51, S_errno_ENETUNREACH` • `1 2021-02-17T23:32:16.811+01:00 DIST-H9-E3.1-01 CP1 - 0x000a45ac - 00000000 GlobalRouter RADIUS ERROR rad_processPendingRequest: unable to send request`	None. This issue has no functional impact.
VOSS-20456	Although the Management Router is not supported in the NOS, you can add a static route for VRF 512 using EDM. The route does not become active even if the next-hop address is reachable from the OOB management interface.	None. This issue has no functional impact.
VOSS-21097	In Multi-Area where vIST peers are boundary nodes, vIST can briefly flap during connection formation when IS-IS is disabled and then reenabled on both vIST peers.	None.
VOSS-21123	Brouters on UNIs of VSP 7400 vIST peers cannot ping each other.	Add a static ARP for the Brouter of the VIST peer.
VOSS-21233	Clearing DvR host entries in a highly scaled Multi-Area DvR environment can trigger DBSYNC WARNING messages (`0x00390606 - 00000000 GlobalRouter DBSYNC WARNING Message queue length from DB Sync to tMain reached warning threshold`) but these can be expected in a scaled environment and are not a malfunction.	None.
VOSS-21964	When using Windows SCP application on a switch to transfer a file, an error message displays even if a file transfers successfully.	
VOSS-22255	Ping, which originates from a local CP, fails for ICMP packets bigger than 1500 sent from Layer 3 VSN interface.	Initiate ping with packets size smaller than 1500.

Issue number	Description	Workaround
VOSS-22522	RESTCONF is delayed in a scaled setup with 2,000 VLANs.	None.
VOSS-22858	LLDP neighbor should not be discovered with mismatch in MKA MACsec on 5520 Series ports.	Disable MKA on both sides or shut down the port on both sides.
VOSS-23146	Multi-area DvR/SPBM configuration: `Timeout: No response` message is returned during snmpwalk on one of the DvR controllers.	Run the snmpwalk command with an increased timeout. You can also run snmpwalk for a specific object.
VOSS-23181	When you enable the **`boot config flags macsec`** command, the indiscard counter increments on SPBM-enabled ports.	None. There is no functional impact.
VOSS-23216	If you do not enable the DvR interface when you configure a dvr-one-ip interface, the dvr-one-ip interface does not display when you issue the **`show dvr interfaces`** command.	Enable the DvR interface.
VOSS-23229	In an E-Tree scenario, IPv6 packets are forwarded between isolated ports on 5520 Series, 5420 Series, and VSP 7400 Series.	None.
VOSS-24777	In the following port configurations on 5520 Series, 5420 Series, VSP 4900 Series, VSP 7200 Series, VSP 7400 Series, VSP 8200 Series, and VSP 8400 Series inVSN ACL entries match ingressing packets that have the same VID as the VLAN associated with the ACL I-SID even if the ACL inVSN I-SID is different: • on an S-UNI port without a platform VLAN • on a T-UNI port VLAN	None.
VOSS-24872	If the collector reachability path changes for Application Telemetry, it is not reflected properly in CLI. Packets remain mirrored towards the correct path but CLI does not reflect the next hop.	None. There is no functional impact.
VOSS-25078	MAC addresses learned on a Switched UNI (S-UNI) port cannot be flushed.	None.
VOSS-25023	5520 Series, 5420 Series, and 5320 Series platforms can reach 100% CPU utilization during inband transfer (FTP, SFTP, and SCP).	None.

Issue number	Description	Workaround
VOSS-25162	RESTCONF ARP and MAC data: on 5x20 switches with 5K ARP entries and 5K MAC entries, it takes approximately 1 minute to retrieve data. The time increases based on the number of entries. The same occurs on VSP 7400 Series with over 15K entries.	None.
VOSS-25225	On 5320 Series, the four highest SFP+ ports are available at 10 Gbps with Trial Licenses. After license expiration, the port speeds drop to 1 Gbps.	Use the **extend-time-period** command prior to the expiration of the Trial License.
VOSS-25288	Secure boot information for 5720 Series does not display when you issue the **show sys-info** command.	None.
VOSS-25728	You cannot assign a second disk to the second virtual service on the following switches: • VSP 4900 Series • VSP 7400 Series • 5720 Series	None.
VOSS-25874	Intermittent issue seen on CFIT rack that causes inconsistency in show output.	None.
VOSS-25959	On the VSP 4900 Series, VSP 7400 Series, and 5720 Series, the virtual service does not operate properly when you configure *e1000* Network Interface Card (NIC) type for SR-IOV and VT-d connect types.	None.
VOSS-26028	On the VSP 4900 Series, VSP 7400 Series, and 5720 Series, the virtual service does not operate properly when you configure more than 16 virtual ports per Extreme Integrated Application Hosting port.	None.
VOSS-26032	NNI port remains in STP blocking state in a very specific scenario and configuration.	Bounce the NNI port.
VOSS-26092	On the VSP 8400 Series, MKA does not operate after you issue the **slot reset** command.	As a workaround, issue the **reset** command to reset your switch.
VOSS-26099	MACsec Key Agreement (MKA) MACsec does not operate properly when you enable and disable MKA MACsec on the port 15-20 times.	None.
VOSS-26122	Intermittently, some CLI commands related to sFlow functionality do not display in the CLI log.	None.

Issue number	Description	Workaround
VOSS-26134	On the VSP 7200 Series, ports link flap one time when the switch boots and after you issue the **shutdown** command.	None.
VOSS-26151	MACsec Key Agreement (MKA) does not operate between Fabric Engine 5520 Series and 5720 Series switches and ExtremeXOS 5520 Series and 5720 Series switches when you use GCM-AES-256 MACsec encryption cipher suite on copper ports.	As a workaround, use GCM-AES-128 MACsec encryption cipher suite to connect Fabric Engine 5520 Series and 5720 Series switches and Switch Engine 5520 Series and 5720 Series switches.
VOSS-26526	After you format a USB drive and issue the **ls** command, the current date and time does not display.	None.
VOSS-26527	Intermittently, the **show sys-info** command does not display the correct part number or serial number for the 2000 W AC PoE power supply (Model XN-ACPWR-2000W with front-to-back ventilation airflow).	None.
VOSS-26665	**Password hash sha2** is present in **show running-config** and **save config**. This is the default value.	None.
VOSS-26692	The entry for VLAN used to send/ receive VXLAN packets to/from FIGW (for IPSec encapsulation) is missing from my_station_tcam table. In this case, traffic over the corresponding FE tunnel is lost.	Shut/no shut of the used sideband port fixes the problem.
VOSS-26822	Configuration tab for Ports 53-54 (VSP 7400-48Y) cannot be accessed from the first attempt.	Select menu options on your Mozilla Firefox browser. Alternatively, use another browser: Google Chrome, Safari, or Microsoft Edge.
VOSS-26831	Device not able to complete trap registration with ExtremeCloud IQ - Site Engine when onboarding with ZTP+.	Use the default Trap profile when using Trap registration with auto onboarding in ExtremeCloud IQ - Site Engine.
VOSS-26884	AP is assigned to an Unregistered rule instead of Wifi Mgmt on a 22.9 version NAC.	None.
VOSS-27235	If you delete a VLAN IP interface, the switch does not delete the associated DvR gateway IP address.	Manually delete the DvR gateway IP address.

Restrictions and Expected Behaviors

This section lists known restrictions and expected behaviors that can first appear to be issues.

For Port Mirroring considerations and restrictions, see *VOSS User Guide*.

General Restrictions and Expected Behaviors

The following table provides a description of the restriction or behavior.

Table 33: General restrictions

Issue number	Description	Workaround
—	If you access the Extreme Integrated Application Hosting virtual machine using **virtual-service tpvm console** and use the Nano text editor inside the console access, the command **^o<cr>** does not write the file to disk.	None.
VOSS-7	Even when you change the LLDP mode of an interface from CDP to LLDP, if the remote side sends CDP packets, the switch accepts them and refreshes the existing CDP neighbor entry.	Disable LLDP on the interface first, and then disable CDP and re-enable LLDP.
VOSS-687	EDM and CLI show different local preference values for a BGP IPv6 route. EDM displays path attributes as received and stored in the BGP subsystem. If the attribute is from an eBGP peer, the local preference displays as zero. CLI displays path attributes associated with the route entry, which can be modified by a policy. If a route policy is not configured, the local preference shows the default value of 100.	None.
VOSS-1954	After you log in to EDM, if you try to refresh the page by clicking on the refresh button in the browser toolbar, it will redirect to a blank page. This issue happens only for the very first attempt and only in Firefox.	To refresh the page and avoid this issue, use the EDM refresh button instead of the browser refresh button. If you do encounter this issue, place your cursor in the address bar of the browser, and press **Enter**. This will return you to the EDM home page.
VOSS-2166	The IPsec security association (SA) configuration has a NULL Encryption option under the **Encrpt-algo** parameter. Currently, you must fill the **encrptKey** and **keyLength** sub-parameters to set this option; however, these values are not used for actual IPsec processing as it is a NULL encryption option. The NULL option is required to interoperate with other vendors whose IPsec solution only supports that mode for encryption.	There is no functional impact due to this configuration and it only leads to an unnecessary configuration step. No workaround required.
VOSS-21946	When you create a vrf using the POSTMAN API platform, special characters, such as \\\\ and ### included in the URL are ignored.	None.

Table 33: General restrictions (continued)

Issue number	Description	Workaround
VOSS-2185	MAC move of the client to the new port does not automatically happen when you move a Non-EAP client authenticated on a specific port to another EAPoL or Non-EAP enabled port.	As a workaround, perform one of the following tasks: • Clear the non-EAP session on the port that the client is first authenticated on, before you move the client to another port. • Create a VLAN on the switch with the same VLAN ID as that dynamically assigned by the RADIUS server during client authentication. Use the command **`vlan create <2-4059> type port-mstprstp <0-63>`**. Ensure that the new port is a member of this VLAN.
VOSS-5197	A BGP peer-group is uniquely identified by its name and not by its index. It is possible that the index that is configured for a peer-group changes between system reboots; however this has no functional impact.	None.
VOSS-7553	Option to configure the default queue profile rate-limit and weight values are inconsistent between EDM and CLI. Option to configure default values is missing in EDM.	None.
VOSS-7640	The same route is learned via multiple IPv6 routing protocols (a combination of two of the following : RIPng, OSPFv3 and BGPv6). In this specific case, an eBGP (current best – preference 45) route is replaced by and iBGP (preference 175) which in turn is replaced by and OSPFv3 (external 2) route (preference 125).	None.
VOSS-7647	With peer group configuration, you cannot configure Update Source interface with IPv6 loopback address in EDM.	Use CLI.
VOSS-9174	OVSDB remote VTEP and MAC details can take between 5 to 10 minutes to populate and display after a HW-VTEP reboots.	Known issue in VMware NSX 6.2.4. You can upgrade to NSX 6.4 to resolve this issue.
VOSS-9462	OVSDB VNID I-SID MAC bindings are not populated on HW-VTEPs after configuration changes.	Known issue in VMware NSX 6.2.4. You can upgrade to NSX 6.4 to resolve this issue.

Table 33: General restrictions (continued)

Issue number	Description	Workaround
VOSS-10168	The system CLI does not prevent you from using the same IP address for the VXLAN Gateway hardware VTEP replication remote peer IP and OOB Management IP.	Manually check the IP configured as the OOB Management IP. Do not use the OOB Management IP address as the replication remote peer IP address.
VOSS-11817	The OVS connect-type for virtual service Vports is designed in such a way that it connects to any generic virtual machine (VM) guest OS version using readily available Ethernet device drivers. This design approach provides initial connectivity to the VM in a consistent manner. A consequence of this approach is that Vports created with connect-type OVS will show up as 1 Gbps interfaces in the VM even though the underlying Ethernet connection supports 10 Gbps .	If additional performance is desired, upgrade the VM guest OS with an Ethernet device driver that supports 10 Gbps interfaces.
VOSS-12151	If logical switch has only hardware ports binding, and not VM behind software VTEP, Broadcast, Unknown Unicast, and Multicast (BUM) traffic does not flow between host behind two hardware VTEP. The NSX replicator node handles the BUM traffic. NSX does not create the replicator node unless a VM is present. In an OVSDB topology, it is expected that at least one VM connects to the software VTEP. This issue is an NSX-imposed limitation.	After you connect the VM to the software VTEP, the issue is not seen.
VOSS-12395	You cannot use the following cables on 10 Gb fiber interfaces, or 40 Gb channelized interfaces, with the QSA28 adapter: • 1, 3, and 5 meter QSFP28 25 Gb DAC • 20 meter QSFP28 25 Gb AOC	n/a
VOSS-17871	Starting with VOSS 8.1.5, internal system updates have resulted in a more accurate accounting of memory utilization. This can result in a higher baseline memory utilization reported although actual memory usage is not impacted.	Update any network management alarms that are triggered by value with the new baseline.
VOSS-18523	When you configure a port using Zero Touch Provisioning Plus (ZTP+) with ExtremeCloud IQ - Site Engine, the port cannot be part of both a tagged VLAN and an untagged VLAN.	n/a

Table 33: General restrictions (continued)

Issue number	Description	Workaround
VOSS-18409	On the XA1400 Series switches, only one Central Processing Unit (CPU) core is assigned for control plane protocol processing. In a highly scaled scenario, a port toggling or negative scenario keeps the CPU core busy in updating the software datapath entries. Similarly, some show CLI commands that require a lot of data gathering keep the CPU core busy. In such a scenario, the main task which is responsible for handling protocol packets like Bidirectional Forwarding Detection, Intermediate-System-to-Intermediate-System, Virtual Link Aggregation Control Protocol, and so on is busy.	For scaled scenarios on XA1400 Series switches, the CLI commands that have large sections of output, for example, show fulltech, show io spb tables, and show tech, the output must be redirected into a file.
VOSS-18774	SSL negotiation fails when using OpenSSL client version 1.1.1. With OpenSSL 1.1.1, the server-name extension is used. This extension needs to equal the domain name in the server certificate, otherwise the certificate lookup on the server fails because the FIPS 140-2 certified cryptographic module processes the server-name extension.	Can connect using: `bash# openssl s_client -connect <domain-name>:443`
VOSS-18851	Do not define a static route in which the NextHop definition uses an Inter-VRF redistributed route. Such a definition would require the system to perform a double lookup. When you attempt to define a static route in this way, an error message is generated.	Define the static route in such a way that it does not require Inter-VRF redistributed routing.
VOSS-21620	When interior nodes are running software earlier than Release 8.4 and a Multi-area takeover occurs between the boundary nodes (when the non-designated boundary node transitions to designated) in the network, the interior nodes might detect a false duplicate case between the stale LSP of the old virtual node and the new virtual node. This has no functional impact in the network.	n/a

Table 33: General restrictions (continued)

Issue number	Description	Workaround
wi01068569	The system displays a warning message that routes will not inject until the apply command is issued after the enable command. The warning applies only after you enable redistribution, and not after you disable redistribution. For example: **`Switch:1(config)#isis apply redistribute direct vrf 2`**	n/a
wi01112491	IS-IS enabled ports cannot be added to an MLT. The current release does not support this configuration.	n/a
wi01122478	Stale SNMP server community entries for different VRFs appear after reboot with no VRFs. On a node with a valid configuration file saved with more than the default vrf0, SNMP community entries for that VRF are created and maintained in a separate text file, `snmp_comm.txt`, on every boot. The node reads this file and updates the SNMP communities available on the node. As a result, if you boot a configuration that has no VRFs, you can still see SNMP community entries for VRFs other than the globalRouter vrf0 .	n/a
wi01137195	A static multicast group cannot be configured on a Layer 2 VLAN before enabling IGMP snooping on the VLAN. After IGMP snooping is enabled on the Layer 2 VLAN for the first time, static multicast group configuration is allowed, even when IGMP snooping is disabled later on that Layer 2 VLAN.	n/a
wi01141638	When a VLAN with 1000 multicast senders is deleted, the console or Telnet session stops responding and SNMP requests time out for up to 2 minutes.	n/a

Table 33: General restrictions (continued)

Issue number	Description	Workaround
wi01142142	When a multicast sender moves from one port to another within the same BEB or from one vIST peer BEB to another, with the old port operationally up, the source port information in the output of the **show ip igmp sender** command is not updated with new sender port information.	You can perform one of the following workarounds: • On an IGMP snoop-enabled interface, you can flush IGMP sender records. Caution: Flushing sender records can cause a transient traffic loss. • On an IGMP-enabled Layer 3 interface, you can toggle the IGMP state. Caution: Expect traffic loss until IGMP records are built after toggling the IGMP state.
wi01145099	IP multicast packets with a time-to-live (TTL) equal to 1 are not switched across the SPB cloud over a Layer 2 VSN. They are dropped by the ingress BEB.	To prevent IP multicast packets from being dropped, configure multicast senders to send traffic with TTL greater than 1.
wi01159075	VSP 4450GTX-HT-PWR+: Mirroring functionality is not working for RSTP BPDUs.	None.
wi01171670	Telnet packets get encrypted on MACsec-enabled ports.	None.
wi01198872	On VSP 4450 Series, a loss of learned MAC addresses occurs in a vIST setup beyond 10k addresses. In a SPB setup the MAC learning is limited to 13k MAC addresses, due to the limitation of the internal architecture when using SPB. Moreover, as vIST uses SPB and due to the way vIST synchronizes MAC addresses with a vIST pair, the MAC learning in a vIST setup is limited to 10K Mac addresses.	None.
wi01210217	The command **show eapol auth-stats** displays `LAST-SRC-MAC` for NEAP sessions incorrectly.	n/a
wi01211415	In addition to the fan modules, each power supply also has a fan. The power supply stops working if a power supply fan fails, but there is no LED or software warning that indicates this failure.	Try to recover the power supply fan by resetting the switch. If the fan does not recover, then replace the faulty power supply.

Table 33: General restrictions (continued)

Issue number	Description	Workaround
wi01212034	When you disable EAPoL globally: • Traffic is allowed for static MAC configured on EAPoL enabled port without authentication. • Static MAC config added for authenticated NEAP client is lost.	n/a
wi01212247	BGP tends to have many routes. Frequent additions or deletions impact network connectivity. To prevent frequent additions or deletions, reflected routes are not withdrawn from client 2 even though they are withdrawn from client 1. Disabling route-reflection can create a black hole in the network.	Bounce the BGP protocol globally.
wi01212585	LED blinking in EDM is representative of, but not identical to, the actual LED blinking rates on the switch.	n/a
wi01213040	When you disable auto-negotiation on both sides, the 10 Gbps copper link does not come up.	n/a
wi01213066 wi01213374	EAP and NEAP are not supported on brouter ports.	n/a
wi01213336	When you configure tx mode port mirroring on T-UNI and SPBM NNI ports, unknown unicast, broadcast and multicast traffic packets that ingress these ports appear on the mirror destination port, although they do not egress the mirror source port. This is because tx mode port mirroring happens on the mirror source port before the source port squelching logic drops the packets at the egress port.	n/a
wi01219658	The command **`show khi port-statistics`** does not display the count for NNI ingress control packets going to the CP.	n/a
wi01219295	SPBM QOS: Egress UNI port does not follow port QOS with ingress NNI port and Mac-in-Mac incoming packets.	n/a
wi01223526	ISIS logs duplicate system ID only when the device is a direct neighbor.	n/a
wi01223557	Multicast outage occurs on LACP MLT when simplified vIST peer is rebooted.	You can perform one of the following workarounds: • Enable PIM on the edge. • Ensure that IST peers are either RP or DR but not both.

Table 33: General restrictions (continued)

Issue number	Description	Workaround
wi01224683 wi01224689	Additional link bounce can occur on 10 Gbps ports when toggling links or during cable re-insertion. Additional link bounce can occur with 40 Gbps optical cables and 40 Gbps break-out cables, when toggling links or during cable re-insertion.	n/a
wi01229417	Origination and termination of IPv6 6-in-4 tunnel is not supported on a node with vIST enabled.	None.
wi01232578	When SSH keyboard-interactive-auth mode is enabled, the server generates the password prompt to be displayed and sends it to the SSH client. The server always sends an expanded format of the IPv6 address. When SSH keyboard-interactive-auth mode is disabled and password-auth is enabled, the client itself generates the password prompt, and it displays the IPv6 address format used in the **ssh** command.	None.
wi01234289	HTTP management of the ONA is not supported when it is deployed with a VSP 4450 Series device.	None.
VOSS-26218	In a scaled environment, running the **show io l2-tables** command reiteratively can cause the switch to reboot.	For scaled scenarios, do not run the **show io l2-tables** command in a loop.

VSP 4450GTX-HT-PWR+ Restrictions

Caution

The VSP 4450GTX-HT-PWR+ has operating temperature and power restrictions. For safety and optimal operation of the device, ensure that the prescribed thresholds are strictly adhered to.

The following table provides a description of the restriction or behavior and the work around, if one exists.

Table 34: VSP 4450GTX-HT-PWR+ restrictions

Behavior	Description	Workaround
For high-temperature threshold	The VSP 4450GTX-HT-PWR+ supports a temperature range of 0°C to 70°C. In the alpha release, power supply does not shut down at an intended over-temperature threshold of 79°C.	To prevent equipment damage, ensure that the operating temperature is within the supported temperature range of 0°C to 70°C.
For power supply wattage threshold	Software functionality to reduce the POE power budget based on the number of operational power supplies and operating temperature is not available in the Alpha SW image.	Ensure that the POE device power draw is maintained at the following when the device is at temperatures between 61°C and 70°C: • 400W — with 1 operational power supply • 832W — with 2 operational power supplies
For inoperable external USB receptacle	The VSP 4450GTX-HT-PWR+ has an empty external USB receptacle that was not available in GTS models. Software to support the use of the external USB receptacle is not yet available in the Alpha SW image. Therefore the USB port is inoperable.	No workarounds are provided with the alpha image.

SSH Connections

VOSS 4.1.0.0 and VOSS 4.2.0.0 SSH server and SSH client support password authentication mode.

VOSS 4.2.1.0 changed the SSH server from password authentication to keyboard-interactive. VOSS 4.2.1.0 changed the SSH client to automatically support either password authentication or keyboard-interactive mode.

In VOSS 4.2.1.0, you cannot configure the SSH server to support password authentication. This limitation creates a backward compatibility issue for SSH clients that do not support keyboard-interactive mode, including SSH clients that are part of pre-VOSS 4.2.1.0 software releases. For example, VOSS 4.1.0.0 SSH clients, VOSS 4.2.0.0 SSH clients, and external SSH clients that only support password authentication cannot connect to VOSS 4.2.1.0 SSH servers.

This issue is addressed in software release VOSS 4.2.1.1 and later. The default mode of the SSH server starting from VOSS 4.2.1.1 is changed back to password authentication. Beginning with VOSS 5.0, you can use a CLI command to change the SSH server mode to keyboard-interactive.

For more information about how to configure the SSH server authentication mode, see *VOSS User Guide*.

See the following table to understand SSH connections between specific client and server software releases.

Table 35: SSH connection support

Client software release	Server software release	Support
VOSS 4.1.0.0	VOSS 4.2.0.0	Supported
VOSS 4.1.0.0	VOSS 4.2.1.0	Not supported
VOSS 4.2.0.0	VOSS 4.2.1.0	Not supported
VOSS 4.1.0.0	VOSS 4.2.1.1	Supported
VOSS 4.2.0.0	VOSS 4.2.1.1	Supported

Fabric Extend IP over ELAN/VPLS

This feature allows multiple switches running Fabric Extend IP to be directly connected over a Layer 2 broadcast domain without the need for loopback VRFs in Release 6.0 or later.

Releases earlier than 6.0 have a single next hop/ARP restriction that require the use of loopback VRFs to deploy Fabric Extend IP over ELAN/VPLS.

For more information, see *VOSS User Guide*.

Redirect Next-hop Filter Restrictions

This feature does not behave the same way on all platforms:

- VSP 4450 Series and VSP 7400 Series

  The redirect next-hop filter redirects packets with a time-to-live (TTL) of 1 rather than sending them to the CPU where the CPU would generate ICMP TTL expired messages. IP Traceroute does not correctly report the hop. For more information, see *VOSS User Guide*.
- VSP 7200 Series and VSP 8000 Series

  The redirect next-hop filter does not redirect packets with a time-to-live (TTL) of 1 nor does it send them to the CPU where the CPU would generate ICMP TTL expired messages. IP Traceroute reports a timeout for the hop. For more information, see *VOSS User Guide*.

IP Source Guard Restrictions

If you enable Application Telemetry, IPv6 Source Guard commands and configurations are blocked and not available on VSP 4450 Series, VSP 7200 Series, and VSP 8000 Series switches.

Filter Restrictions

The following table identifies known restrictions.

Table 36: ACL restrictions

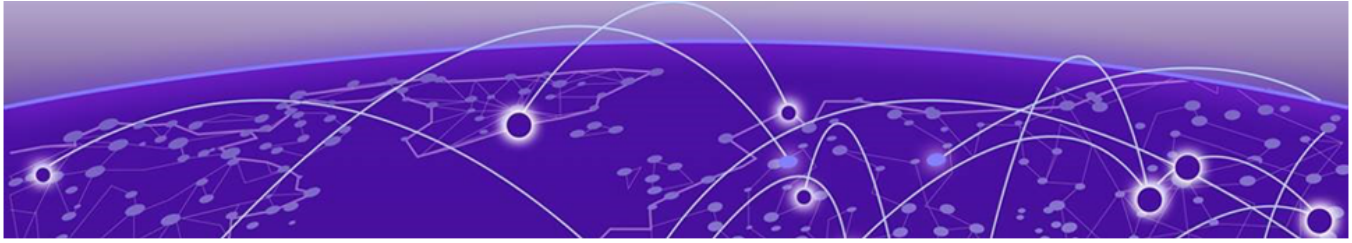
Applies To	Restriction
All platforms	Only port-based ACLs are supported on egress. VLAN-based ACLs are not supported.
All platforms	IPv6 ingress and IPv6 egress QoS ACL/filters are not supported. Note: IPv6 ACL DSCP Remarking is supported on VSP 4900 Series, VSP 7400 Series, and VSP 8404C.
All platforms	Control packet action is not supported on InVSN Filter or IPv6 filters generally.
All platforms	IPv4/IPv6 VLAN based ACL filters will be applied on traffic received on all the ports if it matches VLAN ID associated with the ACL.
VSP 7200 Series VSP 7400 Series VSP 8000 Series	VLAN ID and VLAN_DOT1p attributes for untagged traffic are not supported for ingress/egress filters.
All platforms	Scaling numbers are reduced for IPv6 filters.
All platforms	The InVSN Filter does supports IP Shortcut traffic only on both UNI and NNI ports, but does not support IP Shortcut traffic on UNI ports only and NNI ports only.
All platforms	The InVSN Filter does not filter packets that arrive on NNI ingress ports but are bridged to other NNI ports or are for transit traffic.
All platforms	You can insert an InVSN ACL type for a Switched UNI only if the Switched UNI I-SID is associated with a platform VLAN.

Table 37: ACE restrictions

Applies To	Restriction
All platforms	When an ACE with action count is disabled, the statistics associated with the ACE are reset.
All platforms	Only security ACEs are supported on egress. QoS ACEs are not supported.
All platforms	ICMP type code qualifier is supported only on ingress filters.
All platforms	For port-based ACLs, you can configure VLAN qualifiers. Configuring port qualifiers are not permitted.
All platforms	For VLAN-based ACLs, you can configure port qualifiers. Configuring VLAN qualifiers are not permitted.
All platforms	Egress QoS filters are not supported for IPv6 filters.
All platforms	Source/Destination MAC addresses cannot be added as attributes for IPv6 filters ACEs.

Table 37: ACE restrictions (continued)

Applies To	Restriction
VSP 4450 Series VSP 7200 Series VSP 8000 Series	If more than 256 IPv6 filters are configured, the number of IPv4 filters is reduced.
VSP 4450 Series VSP 7200 Series VSP 8000 Series	If you enable Application Telemetry, IPv6 security filter commands and configurations are blocked and not available.

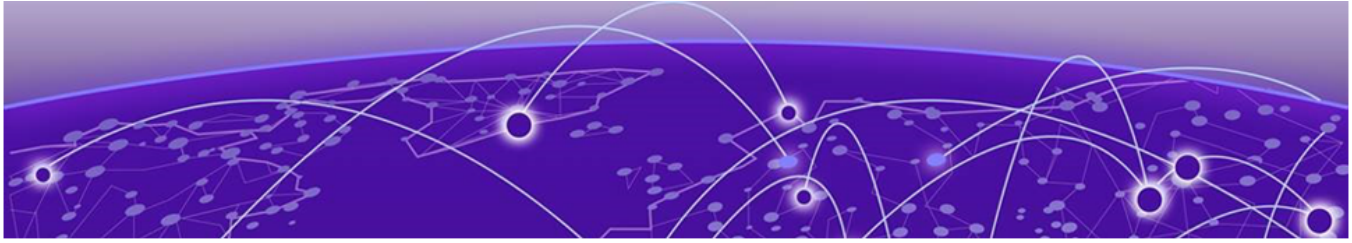


Resolved Issues this Release

This release incorporates all fixes from prior releases, up to and including the following releases:

- VOSS 8.5.3
- VOSS 8.8.1

Issue number	Description
VOSS-18477	On the VSP 4900 Series, an intermittent traffic loss over the FE tunnels, in SMLT contexts, occurs for a few seconds, when you read ports to the SMLT trunk.
VOSS-24771	When you configure the **`macsec connectivity-association name`** to the maximum of 16 characters using CLI, the connectivity association name attached to the port or interface does not display in EDM.
VOSS-25910	In highly scaled networks where the PSNP might be processed with delay, because the PSNPs were not processed yet for the LSPs sent on the already up adjacencies when an additional adjacency comes up, the LSPs, local or forwarded from other nodes, will be resent on all the NNIs, which creates an overhead.
VOSS-26579	When an NNI is created using **`run spbm`**, that port is still in VLAN 1; STP is enabled in CIST on that port.
VOSS-26688	5420 Series rebooted unexpectedly VOSS 8.4.1.1 generating core file.
VOSS-26933	EDM Help does not open for the **Configuration** > **Fabric** > **DVR** > **Globals** tab.
VOSS-27040	Unexpected network congestion and traffic impact.
VOSS-27166	IP ECMP Max-Path 1 is configurable when ip ecmp enabled.
VOSS-27174	VSP 4900 Series 8.1.10.0 - ExtremeCloud IQ - Site Engine backup leads to I2C bus lockup reporting PSU, fan failures, and SFP reads incorrectly.
VOSS-27254	Failed to add new ARP records.
VOSS-27280	Reboot of DvR Leaf node with stp-multi-homing disables IS-IS and Leaf function.
VOSS-27419	Original DAC 10307 not working in 8.6.1.2.



Related Information

MIB Changes on page 129

MIB Changes

Deprecated MIBs

Table 38: Common

Object Name	Object OID	Deprecated in Release
rcIpBgpGeneralGroupRoutePolicyIn	1.3.6.1.4.1.2272.1.8.101.1.22	8.5
rcIpBgpGeneralGroupRoutePolicyOut	1.3.6.1.4.1.2272.1.8.101.1.23	8.5
rcIpConfOspfRfc1583Compatibility	1.3.6.1.4.1.2272.1.8.1.4.5	8.5

Modified MIBs

Table 39: Common

Object Name	Object OID	Modified in Release	Modification
rcChasType	1.3.6.1.4.1.2272.1.4.1	8.6.1	OTHER: Replace "VOSS" with "FabricEngine" in 5x20 models values
rc2kCardFrontType	1.3.6.1.4.1.2272.1.100.6.1.2	8.6.1	OTHER: Replace "VOSS" with "FabricEngine" in 5x20 models values

Table 39: Common (continued)

Object Name	Object OID	Modified in Release	Modification
rcLicenseLicenseType	1.3.6.1.4.1.2272.1.56.4	8.6.1	Added Enum:l10G4P(16), premierPlus10G4P(17), premierPlusMacsecPlus10G4P(18), macsecPlus10G4P(19), l10G8P(20), l10G4PPlus10G8P(21), premierPlus10G8P(22), premierPlusMacsecPlus10G8P(23), macsecPlus10G8P(24), premierPlus10G4PPlus10G8P(25), macsecPlus10G4PPlus10G8P(26), premierPlusMacsecPlus10G4PPlus10G8P(27)
rcIsidGlobalNameUsedByType	1.3.6.1.4.1.2272.1.87.6.1.4	8.8	ADD ENUM: radius(20)
rcIsidServiceOriginBitMap	1.3.6.1.4.1.2272.1.87.2.1.10	8.8	ADD ENUM: radiusL2Vsn(9)
rcIsidInterfaceOriginBitMap	1.3.6.1.4.1.2272.1.87.5.1.10	8.8	ADD ENUM: radiusL2Vsn(9)
rcIsisSpbmIpStaticIsidMcastVsnIsid	1.3.6.1.4.1.2272.1.63.30.1.2	8.8	Modified OID. Is part of the table index now.
rcIsisSpbmIpStaticIsidMcastGroup	1.3.6.1.4.1.2272.1.63.30.1.3	8.8	Modified OID
rcIsisSpbmIpStaticIsidMcastSource	1.3.6.1.4.1.2272.1.63.30.1.4	8.8	Modified OID
rcDvrGlobalRole	1.3.6.1.4.1.2272.1.219.1.2	8.8	CHANGE_RANGE: Changed the range from 1..2 to 1..3
rcVlanOrigin	1.3.6.1.4.1.2272.1.3.2.1.81	8.9	ADD_NEW_VALUE: ztf(3)

Table 39: Common (continued)

Object Name	Object OID	Modified in Release	Modification
rcMACSecIfCAName	1.3.6.1.4.1.2272.1.88.2.1.1	8.9	CHANGE_RANGE: Changed range from 5..15 to 5..16
rc2kBootConfigEnableFactoryDefaultsMode	1.3.6.1.4.1.2272.1.100.5.1.60	8.9	ADD_NEW_VALUES: Add values for additional factorydefaults options

Table 40: VSP 4900 Series

Object Name	Object OID	Modified in Release	Modification
rcPortAutoNegAd	1.3.6.1.4.1.2272.1.4.10.1.1.62	8.5	ADD_NEW_VALUE: advertise25000Full(13)
rcVirtualServiceScalarsName	1.3.6.1.4.1.2272.1.101.1.1.12.7	8.6	OTHER: Add rcVirtualServiceFigwCli in description
rcIsisLogicalInterfaceNextHopVrf	1.3.6.1.4.1.2272.1.63.26.1.13	8.8	Replaced read-only with read-create. Description changed.

Table 41: VSP 7400 Series

Object Name	Object OID	Modified in Release	Modification
rcPortAutoNegAd	1.3.6.1.4.1.2272.1.4.10.1.1.62	8.5	ADD_NEW_VALUE: advertise25000Full(13)
rcIsisGlobalMAHomeAlwaysUp	1.3.6.1.4.1.2272.1.63.1.33	8.6	OTHER: Changed DEFVAL from "false" to true"
rcVirtualServiceScalarsName	1.3.6.1.4.1.2272.1.101.1.1.12.7	8.6	OTHER: Add rcVirtualServiceFigwCli in description
rcIsisLogicalInterfaceNextHopVrf	1.3.6.1.4.1.2272.1.63.26.1.13	8.8	Replaced read-only with read-create. Description changed.

Table 42: VSP 8200 Series

Object Name	Object OID	Modified in VOSS Release	Modification
rcPortAutoNegAd	1.3.6.1.4.1.2272.1.4.10.1.1.62	8.5	ADD_NEW_VALUE: advertise25000Full(13)

New MIBs

Table 43: Common

Object Name	Object OID	New in VOSS Release
rcEapPortReauthOrigin	1.3.6.1.4.1.2272.1.57.2.1.29	8.6.1
rcEapPortReauthPeriodOrigin	1.3.6.1.4.1.2272.1.57.2.1.30	8.6.1
rcVossSystemFanInfoOperSpeedRpm	1.3.6.1.4.1.2272.1.101.1.1.4.1.6	8.6.1
rcVlanOrigin	1.3.6.1.4.1.2272.1.3.2.1.81	8.8
rcVlanMvpnIsidValue	1.3.6.1.4.1.2272.1.3.2.1.82	8.8
rcVlanMvpnIsidStatus	1.3.6.1.4.1.2272.1.3.2.1.84	8.8
rcVrfOrigin	1.3.6.1.4.1.2272.1.203.1.1.2.1.14	8.8
rcIpConfGlobalSpbMulticastPolicyEnable	1.3.6.1.4.1.2272.1.8.1.6.34	8.8
rcIpConfGlobalSpbMulticastPolicyRmap	1.3.6.1.4.1.2272.1.8.1.6.35	8.8
rcIpRoutePolicySetDataIsid	1.3.6.1.4.1.2272.1.8.100.13.1.49	8.8
rcIpRoutePolicySetRxOnly	1.3.6.1.4.1.2272.1.8.100.13.1.50	8.8
rcIpRoutePolicySetTxOnly	1.3.6.1.4.1.2272.1.8.100.13.1.51	8.8
rcIpConfGlobalSpbMulticastPolicyApply	1.3.6.1.4.1.2272.1.8.1.6.36	8.8
rcIsisMAL3RedistStaticIsidRoutedMcastTable	1.3.6.1.4.1.2272.1.63.29.4	8.8
rcIsisMAL3RedistStaticIsidRoutedMcastEntry	1.3.6.1.4.1.2272.1.63.29.4.1	8.8
rcIsisMAL3RedistStaticIsidRoutedMcastType	1.3.6.1.4.1.2272.1.63.29.4.1.1	8.8
rcIsisMAL3RedistStaticIsidRoutedMcastEnable	1.3.6.1.4.1.2272.1.63.29.4.1.2	8.8
rcIsisMAL3RedistStaticIsidRoutedMcastIsidListName	1.3.6.1.4.1.2272.1.63.29.4.1.3	8.8
rcIsisMAL3RedistStaticIsidRoutedMcastApply	1.3.6.1.4.1.2272.1.63.29.4.1.4	8.8
rcIsisMAL3RedistStaticIsidRoutedMcastRowStatus	1.3.6.1.4.1.2272.1.63.29.4.1.5	8.8
rcAutoSenseMultihostMacMax	1.3.6.1.4.1.2272.1.231.1.1.1.24	8.8
rcAutoSenseMultihostEapMacMax	1.3.6.1.4.1.2272.1.231.1.1.1.25	8.8
rcAutoSenseMultihostNonEapMacMax	1.3.6.1.4.1.2272.1.231.1.1.1.26	8.8
rcIsisCircuitPlsbL1MetricAuto	1.3.6.1.4.1.2272.1.63.5.1.10	8.9
rcPlugOptModSupportedSpeeds	1.3.6.1.4.1.2272.1.71.1.1.106	8.9

Table 43: Common (continued)

Object Name	Object OID	New in VOSS Release
rcAutoSenseIsisL1Metric	1.3.6.1.4.1.2272.1.231.1.1.1.27	8.9
rcAutoSenseIsisL1MetricAuto	1.3.6.1.4.1.2272.1.231.1.1.1.28	8.9

Table 44: VSP 4450 Series

Object Name	Object OID	New in Release
rcAutoSense	1.3.6.1.4.1.2272.1.231	8.5
rcAutoSenseMib	1.3.6.1.4.1.2272.1.231.1	8.5
rcAutoSenseNotifications	1.3.6.1.4.1.2272.1.231.1.0	8.5
rcAutoSenseObjects	1.3.6.1.4.1.2272.1.231.1.1	8.5
rcAutoSenseScalars	1.3.6.1.4.1.2272.1.231.1.1.1	8.5
rcAutoSenseAccessDiffservEnable	1.3.6.1.4.1.2272.1.231.1.1.1.1	8.5
rcAutoSenseDataIsid	1.3.6.1.4.1.2272.1.231.1.1.1.2	8.5
rcAutoSenseEapolVoiceLldpAuthEnable	1.3.6.1.4.1.2272.1.231.1.1.1.3	8.5
rcAutoSenseFaMsgAuthEnable	1.3.6.1.4.1.2272.1.231.1.1.1.4	8.5
rcAutoSenseFaAuthenticationKey	1.3.6.1.4.1.2272.1.231.1.1.1.5	8.5
rcAutoSenseIsisHelloAuthType	1.3.6.1.4.1.2272.1.231.1.1.1.6	8.5
rcAutoSenseIsisHelloAuthKey	1.3.6.1.4.1.2272.1.231.1.1.1.7	8.5
rcAutoSenseOnboardingIsid	1.3.6.1.4.1.2272.1.231.1.1.1.8	8.5
rcAutoSenseQos8021pOverrideEnable	1.3.6.1.4.1.2272.1.231.1.1.1.9	8.5
rcAutoSenseVoiceIsid	1.3.6.1.4.1.2272.1.231.1.1.1.10	8.5
rcAutoSenseVoiceCvid	1.3.6.1.4.1.2272.1.231.1.1.1.11	8.5
rcAutoSenseIsisHelloAuthKeyId	1.3.6.1.4.1.2272.1.231.1.1.1.12	8.5
rcAutoSenseDhcpDetection	1.3.6.1.4.1.2272.1.231.1.1.1.13	8.5
rcAutoSenseFaCameraIsid	1.3.6.1.4.1.2272.1.231.1.1.1.14	8.5
rcAutoSenseFaProxyMgmtIsid	1.3.6.1.4.1.2272.1.231.1.1.1.15	8.5
rcAutoSenseFaProxyMgmtCvid	1.3.6.1.4.1.2272.1.231.1.1.1.16	8.5
rcAutoSenseFaProxyNoAuthIsid	1.3.6.1.4.1.2272.1.231.1.1.1.17	8.5
rcAutoSenseFaVirtualSwitchIsid	1.3.6.1.4.1.2272.1.231.1.1.1.18	8.5
rcAutoSenseFaWapType1Isid	1.3.6.1.4.1.2272.1.231.1.1.1.19	8.5
rcAutoSenseFaCameraEapolStatus	1.3.6.1.4.1.2272.1.231.1.1.1.20	8.5
rcAutoSenseFaEapolOVSStatus	1.3.6.1.4.1.2272.1.231.1.1.1.21	8.5
rcAutoSenseFaEapolWap1Status	1.3.6.1.4.1.2272.1.231.1.1.1.22	8.5
rcAutoSenseWaitInterval	1.3.6.1.4.1.2272.1.231.1.1.1.23	8.5
rcPortAutoSenseDataIsid	1.3.6.1.4.1.2272.1.4.10.1.1.136	8.5

Table 44: VSP 4450 Series (continued)

Object Name	Object OID	New in Release
rcNlsMgmtInterfaceDropIcmpFragEnable	1.3.6.1.4.1.2272.1.223.1.1.16	8.5
rcNlsMgmtInterfaceDropIcmpv6FragEnable	1.3.6.1.4.1.2272.1.223.1.1.17	8.5
rcNlsMgmtIsid	1.3.6.1.4.1.2272.1.223.1.1.18	8.5

Table 45: VSP 4900 Series

Object Name	Object OID	New in Release
rcVirtualServiceFigwCli	1.3.6.1.4.1.2272.1.101.1.1.12.11	8.6
rcIsisLogicalInterfaceSrcIPAddr	1.3.6.1.4.1.2272.1.63.26.1.31	8.8
rcIsisSpbmIpStaticIsidMcastRouteTable	1.3.6.1.4.1.2272.1.63.30	8.8
rcIsisSpbmIpStaticIsidMcastRouteEntry	1.3.6.1.4.1.2272.1.63.30.1	8.8
rcIsisSpbmIpStaticIsidMcastIsidType	1.3.6.1.4.1.2272.1.63.30.1.1	8.8
rcIsisSpbmIpStaticIsidMcastGroup	1.3.6.1.4.1.2272.1.63.30.1.2	8.8
rcIsisSpbmIpStaticIsidMcastSource	1.3.6.1.4.1.2272.1.63.30.1.3	8.8
rcIsisSpbmIpStaticIsidMcastVsnIsid	1.3.6.1.4.1.2272.1.63.30.1.4	8.8
rcIsisSpbmIpStaticIsidMcastSourceBeb	1.3.6.1.4.1.2272.1.63.30.1.5	8.8
rcIsisSpbmIpStaticIsidMcastVrfName	1.3.6.1.4.1.2272.1.63.30.1.6	8.8
rcIsisSpbmIpStaticIsidMcastDataIsid	1.3.6.1.4.1.2272.1.63.30.1.7	8.8
rcIsisSpbmIpStaticIsidMcastBvlan	1.3.6.1.4.1.2272.1.63.30.1.8	8.8
rcIsisSpbmIpStaticIsidMcastNniIntfPorts	1.3.6.1.4.1.2272.1.63.30.1.9	8.8
rcIsisSpbmIpStaticIsidMcastNniIntfMlts	1.3.6.1.4.1.2272.1.63.30.1.10	8.8
rcIgmpSendersScopeIsid	1.3.6.1.4.1.2272.1.30.28.1.8	8.8
rcIgmpSendersDataIsid	1.3.6.1.4.1.2272.1.30.28.1.9	8.8
rcIgmpInterfaceExtnRoutedSpbQuerierAddr	1.3.6.1.4.1.2272.1.30.1.1.42	8.8
rcDvrGlobalVrrpEnable	1.3.6.1.4.1.2272.1.219.1.20	8.8
rcDvrGlobalVrrpPriority	1.3.6.1.4.1.2272.1.219.1.21	8.8
rcDvrGlobalVrrpElectionVlanId	1.3.6.1.4.1.2272.1.219.1.22	8.8
rcVrrpOperMasterHostname	1.3.6.1.4.1.2272.1.73.1.1.2.1.27	8.8
rcVrrpOperOrigin	1.3.6.1.4.1.2272.1.73.1.1.2.1.28	8.8
rcVlanDvrVrrpElection	1.3.6.1.4.1.2272.1.3.2.1.83	8.8

Table 45: VSP 4900 Series (continued)

Object Name	Object OID	New in Release
rcEapStoredVSAsTable	1.3.6.1.4.1.2272.1.57.7.1	8.8
rcVossSystemAutoVimSpeed	1.3.6.1.4.1.2272.1.101.1.1.1.8	8.9

Table 46: VSP 7400 Series

Object Name	Object OID	New in Release
rcVirtualServiceFigwCli	1.3.6.1.4.1.2272.1.101.1.1.12.11	8.6
rcIsisLogicalInterfaceSrcIPAddr	1.3.6.1.4.1.2272.1.63.26.1.31	8.8
rcIsisSpbmIpStaticIsidMcastRouteTable	1.3.6.1.4.1.2272.1.63.30	8.8
rcIsisSpbmIpStaticIsidMcastRouteEntry	1.3.6.1.4.1.2272.1.63.30.1	8.8
rcIsisSpbmIpStaticIsidMcastIsidType	1.3.6.1.4.1.2272.1.63.30.1.1	8.8
rcIsisSpbmIpStaticIsidMcastGroup	1.3.6.1.4.1.2272.1.63.30.1.2	8.8
rcIsisSpbmIpStaticIsidMcastSource	1.3.6.1.4.1.2272.1.63.30.1.3	8.8
rcIsisSpbmIpStaticIsidMcastVsnIsid	1.3.6.1.4.1.2272.1.63.30.1.4	8.8
rcIsisSpbmIpStaticIsidMcastSourceBeb	1.3.6.1.4.1.2272.1.63.30.1.5	8.8
rcIsisSpbmIpStaticIsidMcastVrfName	1.3.6.1.4.1.2272.1.63.30.1.6	8.8
rcIsisSpbmIpStaticIsidMcastDataIsid	1.3.6.1.4.1.2272.1.63.30.1.7	8.8
rcIsisSpbmIpStaticIsidMcastBvlan	1.3.6.1.4.1.2272.1.63.30.1.8	8.8
rcIsisSpbmIpStaticIsidMcastNniIntfPorts	1.3.6.1.4.1.2272.1.63.30.1.9	8.8
rcIsisSpbmIpStaticIsidMcastNniIntfMlts	1.3.6.1.4.1.2272.1.63.30.1.10	8.8
rcIgmpSendersScopeIsid	1.3.6.1.4.1.2272.1.30.28.1.8	8.8
rcIgmpSendersDataIsid	1.3.6.1.4.1.2272.1.30.28.1.9	8.8
rcIgmpInterfaceExtnRoutedSpbQuerierAddr	1.3.6.1.4.1.2272.1.30.1.1.42	8.8
rcDvrGlobalVrrpEnable	1.3.6.1.4.1.2272.1.219.1.20	8.8
rcDvrGlobalVrrpPriority	1.3.6.1.4.1.2272.1.219.1.21	8.8
rcDvrGlobalVrrpElectionVlanId	1.3.6.1.4.1.2272.1.219.1.22	8.8
rcVrrpOperMasterHostname	1.3.6.1.4.1.2272.1.73.1.1.2.1.27	8.8
rcVrrpOperOrigin	1.3.6.1.4.1.2272.1.73.1.1.2.1.28	8.8
rcVlanDvrVrrpElection	1.3.6.1.4.1.2272.1.3.2.1.83	8.8
rcEapStoredVSAsTable	1.3.6.1.4.1.2272.1.57.7.1	8.8
rcPrFilterAclStatsMatchDefaultPrimaryBankPkts	1.3.6.1.4.1.2272.1.202.1.1.2.3.2.1.29	8.8
rcPrFilterAclStatsMatchDefaultPrimaryBankOctets	1.3.6.1.4.1.2272.1.202.1.1.2.3.2.1.30	8.8
rcPrFilterAclStatsMatchDefaultSecondaryBankPkts	1.3.6.1.4.1.2272.1.202.1.1.2.3.2.1.31	8.8
rcPrFilterAclStatsMatchDefaultSecondaryBankOctets	1.3.6.1.4.1.2272.1.202.1.1.2.3.2.1.32	8.8
rcPrFilterAclStatsMatchGlobalPrimaryBankPkts	1.3.6.1.4.1.2272.1.202.1.1.2.3.2.1.33	8.8

Table 46: VSP 7400 Series (continued)

Object Name	Object OID	New in Release
rcPrFilterAclStatsMatchGlobalPrimaryBankOctets	1.3.6.1.4.1.2272.1.202.1.1.2.3.2.1.34	8.8
rcPrFilterAclStatsMatchGlobalSecondaryBankPkts	1.3.6.1.4.1.2272.1.202.1.1.2.3.2.1.35	8.8
rcPrFilterAclStatsMatchGlobalSecondaryBankOctets	1.3.6.1.4.1.2272.1.202.1.1.2.3.2.1.36	8.8
rcVlanMvpnIsidOffset	1.3.6.1.4.1.2272.1.3.2.1.86	8.9
rcCloudIqLastDisconnectedTime	1.3.6.1.4.1.2272.1.230.1.1.24	8.9
rcCloudIqLastAttemptedAssociationTime	1.3.6.1.4.1.2272.1.230.1.1.25	8.9
rcCloudIqNextAssociationAttempt	1.3.6.1.4.1.2272.1.230.1.1.26	8.9
rcCloudIqAssociationFrequencyMode	1.3.6.1.4.1.2272.1.230.1.1.27	8.9

Table 47: VSP 8000 Series

Object Name	Object OID	New in Release
rcAutoSense	1.3.6.1.4.1.2272.1.231	8.5
rcAutoSenseMib	1.3.6.1.4.1.2272.1.231.1	8.5
rcAutoSenseNotifications	1.3.6.1.4.1.2272.1.231.1.0	8.5
rcAutoSenseObjects	1.3.6.1.4.1.2272.1.231.1.1	8.5
rcAutoSenseScalars	1.3.6.1.4.1.2272.1.231.1.1.1	8.5
rcAutoSenseAccessDiffservEnable	1.3.6.1.4.1.2272.1.231.1.1.1.1	8.5
rcAutoSenseDataIsid	1.3.6.1.4.1.2272.1.231.1.1.1.2	8.5
rcAutoSenseEapolVoiceLldpAuthEnable	1.3.6.1.4.1.2272.1.231.1.1.1.3	8.5
rcAutoSenseFaMsgAuthEnable	1.3.6.1.4.1.2272.1.231.1.1.1.4	8.5
rcAutoSenseFaAuthenticationKey	1.3.6.1.4.1.2272.1.231.1.1.1.5	8.5
rcAutoSenseIsisHelloAuthType	1.3.6.1.4.1.2272.1.231.1.1.1.6	8.5
rcAutoSenseIsisHelloAuthKey	1.3.6.1.4.1.2272.1.231.1.1.1.7	8.5
rcAutoSenseOnboardingIsid	1.3.6.1.4.1.2272.1.231.1.1.1.8	8.5
rcAutoSenseQos8021pOverrideEnable	1.3.6.1.4.1.2272.1.231.1.1.1.9	8.5
rcAutoSenseVoiceIsid	1.3.6.1.4.1.2272.1.231.1.1.1.10	8.5
rcAutoSenseVoiceCvid	1.3.6.1.4.1.2272.1.231.1.1.1.11	8.5
rcAutoSenseIsisHelloAuthKeyId	1.3.6.1.4.1.2272.1.231.1.1.1.12	8.5
rcAutoSenseDhcpDetection	1.3.6.1.4.1.2272.1.231.1.1.1.13	8.5
rcAutoSenseFaCameraIsid	1.3.6.1.4.1.2272.1.231.1.1.1.14	8.5
rcAutoSenseFaProxyMgmtIsid	1.3.6.1.4.1.2272.1.231.1.1.1.15	8.5
rcAutoSenseFaProxyMgmtCvid	1.3.6.1.4.1.2272.1.231.1.1.1.16	8.5
rcAutoSenseFaProxyNoAuthIsid	1.3.6.1.4.1.2272.1.231.1.1.1.17	8.5
rcAutoSenseFaVirtualSwitchIsid	1.3.6.1.4.1.2272.1.231.1.1.1.18	8.5

Table 47: VSP 8000 Series (continued)

Object Name	Object OID	New in Release
rcAutoSenseFaWapType1Isid	1.3.6.1.4.1.2272.1.231.1.1.1.19	8.5
rcAutoSenseFaCameraEapolStatus	1.3.6.1.4.1.2272.1.231.1.1.1.20	8.5
rcAutoSenseFaEapolOVSStatus	1.3.6.1.4.1.2272.1.231.1.1.1.21	8.5
rcAutoSenseFaEapolWap1Status	1.3.6.1.4.1.2272.1.231.1.1.1.22	8.5
rcAutoSenseWaitInterval	1.3.6.1.4.1.2272.1.231.1.1.1.23	8.5
rcPortAutoSenseDataIsid	1.3.6.1.4.1.2272.1.4.10.1.1.136	8.5
rcNlsMgmtInterfaceDropIcmpFragEnable	1.3.6.1.4.1.2272.1.223.1.1.16	8.5
rcNlsMgmtInterfaceDropIcmpv6FragEnable	1.3.6.1.4.1.2272.1.223.1.1.17	8.5
rcNlsMgmtIsid	1.3.6.1.4.1.2272.1.223.1.1.18	8.5

Table 48: XA1400 Series

Object Name	Object OID	New in Release
rcVlanMvpnIsidOffset	1.3.6.1.4.1.2272.1.3.2.1.86	8.9
rcCloudIqLastDisconnectedTime	1.3.6.1.4.1.2272.1.230.1.1.24	8.9
rcCloudIqLastAttemptedAssociationTime	1.3.6.1.4.1.2272.1.230.1.1.25	8.9
rcCloudIqNextAssociationAttempt	1.3.6.1.4.1.2272.1.230.1.1.26	8.9
rcCloudIqAssociationFrequencyMode	1.3.6.1.4.1.2272.1.230.1.1.27	8.9