



# Release Notes for VSP Operating System Software

Release 7.0 (VOSS)  
9035336 Rev.03  
September 2018

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# Chapter 1: Preface

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## Disclaimer

On July 15, 2017, Extreme Networks acquired the Networking Business Unit from Avaya. In some cases the Avaya name is specific to command syntax, in those cases Avaya may continue to appear in the documentation and the operational software. Where applicable the documentation will continue to use the name of Avaya products that did not transition to Extreme Networks with which the networking products have unique operational capabilities

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## 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

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## Training

Ongoing product training is available. For more information or to register, you can access the Web site at [www.extremenetworks.com/education/](http://www.extremenetworks.com/education/).

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## Providing Feedback to Us

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

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

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

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  - Email: [support@extremenetworks.com](mailto:support@extremenetworks.com). To expedite your message, enter the product name or model number in the subject line.
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- [Support Portal](#) – Manage cases, downloads, service contracts, product licensing, and training and certifications.

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

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

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## Subscribing to Service Notifications

Subscribe to receive an email notification for product and software release announcements, Vulnerability Notices, and Service Notifications.

### About this task

You can modify your product selections at any time.

### Procedure

1. In an Internet browser, go to <http://www.extremenetworks.com/support/service-notification-form/>.
2. Type your first and last name.
3. Type the name of your company.
4. Type your email address.
5. Type your job title.
6. Select the industry in which your company operates.
7. Confirm your geographic information is correct.
8. Select the products for which you would like to receive notifications.
9. Click **Submit**.

# Chapter 2: New in this Release

The following sections describe what is new in VOSS 7.0. For a full list of features, see [Features by Release](#) on page 90.

**\* Note:**

The following platforms support VOSS 7.0:

- VSP 4000
- VSP 7200
- VSP 8200
- VSP 8400

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## New Hardware

VOSS 7.0 introduces support for the following transceivers and direct attach cables:

- 1000BASE-SX LC SFP, GbE (PN: 10051H)
- 1000BASE-LX LC SFP, GbE (PN: 10052H)
- 1000BASE-ZX LC SFP, GbE (PN: 10053H)
- 10GbE SR SFP+ (PN: 10301)
- 10GbE LR SFP+ (PN: 10302)
- 10GbE Bidirectional 40 km SFP+ (PN: 10GB-BX40-D, 10GBBX40-U) Must be ordered/used in pairs
- 40GbE LR4 QSFP+ (PN: 10320)
- 40GbE LR4 PSM (Parallel Single-Mode) QSFP+ (PN: 10326)
- 40GbE ER4 QSFP+ (PN: 10335)
- 40GbE Bidirectional MMF QSFP+ (PN: 10329)
- 100GbE SR4 MMF QSFP28 (PN: 10401)
- 100GbE LR4 10km QSFP28 (PN: 10403)
- 100GbE CWDM4 2 km SMF QSFP28 (PN: 10404)



- 100 Gigabit Ethernet QSFP28 Active Optical Direct Attach Cable (DAC), 10 meters (P/N: 10436)

The following table indicates where to find more information about optical transceivers and components.

Extreme Networks optical transceivers and components	<i>Pluggable Transceivers Installation Guide</i> on the Extreme Networks documentation web site
Compatibility for Extreme Networks SFP, SFP+, QSFP+, and QSFP28 transceiver modules with the VSP series switches	<a href="#">VSP Components: SFP, SFP+, QSFP+, QSFP28 Support</a>
Optical transceivers and components previously branded as Avaya	<i>Installing Transceivers and Optical Components on VSP Operating System Software</i>

## VOSS 7.0

### Linux kernel version 4.9

This release introduces a new Linux kernel on VSP 4450GSX-PWR+, VSP 4450GSX, VSP 4450GTX-HT-PWR+, VSP 7200 Series, VSP 8200, and VSP 8400. Introduction of the new Linux kernel has implications on software upgrades and downgrades. For more information, see [Supported Upgrade Paths](#) on page 18.

The new Linux kernel, and features dependent on it, are not supported on VSP 4850GTS and VSP 4850GTS-PWR+.

### Auto-complete for "sh" CLI command

When typing `sh` at a command prompt and pressing **Tab** to auto-complete the command, the `sha512` command would appear. This has been changed so that pressing **Tab** after typing `sh` auto-completes to `show`.

The `sha512` command is now located under the `file-checksum` command.

For more information, see *CLI Commands Reference*.

### BGPv6

BGP peering over IPv6 transport uses a BGPv6 peer to exchange IPv6 routes over an IPv6 transport layer. This is different than BGP+, which enables exchange of IPv6 routes over a BGPv4 peer. Also with BGP+, you must use an IPv6 tunnel to install and configure IPv6 routes in an IPv6 Routing Table Manager (RTM). BGP+ uses an IPv4 mapped IPv6 address for the next hop address and requires you to configure IPv6 static routes and install IPv6 routes in an IPv6 RTM where the next hop for the static route is an IPv6 tunnel interface.

For more information, see *Configuring BGP Services*.

### Dynamic Nickname Assignment

Dynamic Nickname Assignment is a Fabric wide service used to automatically assign nicknames to SPBM nodes. It eliminates the need for customers to plan nicknames for all the nodes in the network. This requires enabling one or more nickname servers on SPBM enabled nodes. You can

configure one or more nickname servers in the same Fabric network. Configuring multiple nickname servers with non-overlapping nickname ranges provides resiliency. Static nickname assignment and Dynamic Nickname Assignment can coexist in the same Fabric network.

For more information, see *Configuring Fabric Basics and Layer 2 Services*.

### **EAPoL and RADIUS enhancements**

This release provides the following EAPoL enhancements. For more information on these features, see *Configuring Security*.

#### **Show eapol summary:**

The summary parameter for the `show eapol` command allows users to display the total number of EAP and NEAP clients without having to display all clients.

#### **RFC 5997 – RADIUS Reachability Server Status:**

RADIUS Reachability supports the use of Status-Server packets, as defined in RFC5997. Using Status-Server packets rather than user-configured dummy packets provides a standard-compliant solution. RADIUS Servers must support RFC5997 in order to respond to Status-Server packets.

#### **EAP default values:**

The default values for `eap-mac-max`, `neap-mac-max`, and `mac-max` are changed to allow easier configuration. The new default values are as follows:

- The new default value for `eap-mac-max` is 2.
- The new default value for `neap-mac-max` is 2.
- The new default value for `mac-max` is 2.

The default password generated by the switch for NEAP uses the MAC address. The previous format for the default NEAP password was IP address.MAC address.port number.

The default RADIUS timeout value is changed from 3 seconds to 8 seconds.

The configurable interval for RADIUS timeout is changed to <1–180>.

The configurable interval for `mac-max` is changed to <1–8192>.

The configurable interval for `eap-mac-max` is changed to <0–8192>.

#### **RFC 5176 – Dynamic Authorization Extensions to RADIUS:**

RADIUS Dynamic Authorization Extensions, as defined in RFC 5176, enables the following dynamic changes of EAP and NEAP user session characteristics:

- **Disconnect:** Disconnect authenticated users on a port and remove all the associated session context.
- **Change of Authorization:** If a user session is successfully identified, remove the port from a VLAN and add the port to the VLAN specified in the Change of Authorization request.

The Reauthenticate dynamic change is a proprietary implementation that enables reauthentication of a client with new attributes from the RADIUS server.

#### **QoS Priority Assignment:**

QoS priority assignment allows the assignment of priority by RADIUS server. In MHMV mode, each MAC can have different QoS priorities that are assigned by the RADIUS server. For MHSA ports, port priority is per port and assigned by the RADIUS server.

**New RADIUS attributes:**

The following RADIUS attributes are now supported:

- **Acct-Terminate-Cause:** This RADIUS accounting attribute indicates how a session was terminated.
- **Event-Timestamp:** This RADIUS accounting attribute indicates the time that an event occurred on the Network Access Server (NAS).
- **Service Type:** This RADIUS authentication attribute indicates the type of service requested by the user, or the type of service to be provided.

**RADIUS EDM username:**

The limitation on the number of characters in an EDM username for users logging into EDM configured with RADIUS authentication is increased to 64 characters. Previously the username was truncated to 20 characters when sent to the RADIUS server. This change aligns EDM usernames with usernames entered in CLI, which permits usernames up to 64 characters in length.

**Authentication of 8,000 MAC addresses:**

VOSS switches can now support authentication of up to 8,000 MAC addresses with an authentication rate of 50-75 packets per second. To support authentication of 8,000 MAC addresses, some configuration and default values for EAP and RADIUS are changed. For more information, see *Configuring Security*.

**Energy Saver**

The Energy Saver feature reduces network infrastructure power consumption without impacting network connectivity. Energy Saver uses intelligent-switching capacity reduction in off-peak mode to reduce direct power consumption by up to 40%. You can schedule Energy Saver to enter lower power states during multiple specific time periods. These time periods can be as short as one minute, or last a complete week, complete weekend, or individual days. Energy Saver can also use Power over Ethernet (PoE) port-power priority levels to shut down low-priority PoE ports and provide more power savings.

**\* Note:**

Energy Saver is supported only on copper ports that have auto-negotiation enabled on them.

For more information, see *Administering*.

**QoS egress queue profiles**

The `qos queue-profile` command adds the following:

- You can add or remove a port member.
- You can add or remove a queue-profile name to a port list.
- You can now create six queue profiles.

For more information, see *Configuring QoS and ACL-Based Traffic Filtering*.

**Enhancements to the ping and traceroute commands to support the Segmented Management Instance**

The `ping` and `traceroute` commands now include additional options to support the Segmented Management Instance. You can specify a Segmented Management Instance to force the OS to use the correct source for the outgoing traceroute or ICMP ECHO request packet.

For more information, see *Troubleshooting*.

### **GREP with CLI show commands**

You can now use Global Regular Expression Print (GREP) with **show** commands to filter the output based on match criteria.

For more information, see *Using CLI and EDM*.

### **InVSN Filter**

The InVSN Filter is an Access Control List (ACL) that can be used with MAC-in-MAC (MIM) encapsulated packets that are received on the Network Node Interface (NNI) ingress ports and are routed or bridged to UNI ports or terminated on the fabric node. The InVSN Filter matches and filters IPv4 and IPv6 packet headers coming on NNI ports only. 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.

For more information, see *Configuring QoS and ACL-Based Traffic Filtering*.

### **IPv6 egress filters**

Use IPv6 egress filters to configure egress IPv6 Access Control Lists (ACLs). You must configure the boot config flags with `ipv6-egress-filter`, save the configuration, and then restart the switch. IPv6 egress qualifiers are allocated to the group during startup.

To enable IPv6 egress filters, use the command `boot config flags ipv6-egress-filter`.

For more information, see *Configuring QoS and ACL-Based Traffic Filtering*.

### **IPv6 loopback statistics**

You can use a new parameter with the following commands to view and clear IPv6 statistics for a loopback interface:

- `clear ipv6 statistics interface general`
- `clear ipv6 statistics interface icmp`
- `show ipv6 interface icmpstatistics`
- `show ipv6 interface statistics`

For more information, see *Monitoring Performance*.

### **IPv6 management applications in GRT**

This release adds support for the following IPv6 management applications in GRT:

- SSH client
- TFTP client
- Rlogin client

For more information about management applications, see *Administering*.

### **IPv6 Virtualization**

This release introduces support for IPv6 routing on VRFs and Layer 3 VSNs.

The following features are supported in this release:

- IPv6 Interfaces and IPv6 Static Routes in VRFs and Layer 3 VSNs

- ECMP and Alternative route
- Route redistribution for static and direct routes
- VRRPv3 for IPv6
- DHCP Relay
- IPv6 Reverse Path Forwarding
- ICMP Ping and Traceroute

**\* Note:**

Because IPv6 RSMLT is not virtualized in this release, you cannot enable both RSMLT and an IPv6 interface on the same VRF.

For more information, see *Configuring IPv6 Routing*.

### **IS-IS authentication with SHA-256**

Secure Hashing Algorithm 256 bits (SHA-256) is a cipher and a cryptographic hash function of SHA2 authentication. You can use SHA-256 to authenticate IS-IS Hello messages. This authentication method uses the SHA-256 hash function and a secret key to establish a secure connection between switches that share the same key.

This feature is in full compliance with RFC 5310.

For more information, see *Configuring Fabric Basics and Layer 2 Services*.

### **IS-IS parallel adjacencies between two nodes**

This release supports multiple parallel adjacencies between the two nodes to provide link redundancy. The switch selects the adjacency with the shortest path as the active adjacency.

**\* Note:**

IS-IS parallel adjacency support is enabled by default, and it cannot be disabled.

For more information, see *Configuring Fabric Basics and Layer 2 Services*.

### **Link-state tracking (LST)**

Link-state tracking (LST) binds the link state of multiple interfaces, creating LST groups with upstream (to-be-followed) and downstream (to-follow) interfaces. LST monitors the state of upstream interfaces and automatically transfers the upstream state to the downstream interfaces. If all the upstream interfaces in a LST group are down, the downstream interfaces are administratively configured as down after approximately five seconds. If any upstream interface in a LST group is up, the downstream interfaces are not affected. The role of the LST group is to keep the downstream interfaces in the same state as the upstream interface.

For more information, see *Configuring Link Aggregation, MLT, SMLT, and vIST*.

### **Link Layer Discovery Protocol-Media Endpoint Discovery (LLDP-MED)**

Link Layer Discovery Protocol-Media Endpoint Discovery (LLDP-MED) defined in ANSI/TIA-1057, is an extension to the LLDP standard protocol as defined in IEEE 802.1AB. LLDP-MED provides support to deploy Voice over Internet Protocol (VoIP) telephones into the LAN environment. LLDP-MED supports basic configuration, network policy configuration, location identification, and inventory management.

For more information, see *Administering*.

## **MSTP-Fabric Connect Multi Homing**

The MSTP-Fabric Connect Multi Homing feature allows MSTP or RSTP network to be multi-homed into a Fabric Connect network, providing a loop-free topology.

For more information, see *Configuring Fabric Basics and Layer 2 Services*.

## **Multiple CLI users per role**

This release increases the number of CLI users per role (rwa, rw, ro) from 3 users (1 per role) to a maximum of 10 CLI users per switch, which includes:

- 3 default users (rwa, rw, ro)—User Type = default
- 7 user defined users—User Type = userDefined

User defined users can have ro or rw or rwa access rights.

For more information, see *Administering*.

## **NTPv4**

Network Time Protocol (NTP) is widely used to synchronize time between devices on networks. NTP version 4 (NTPv4) is an extension to the current NTPv3 where it supports IPv6 addresses, and is backward compatible with NTPv3. NTPv4 includes fundamental improvements that extend the potential accuracy to the tens of microseconds. It includes a dynamic server discovery scheme, so that in many cases, specific server configuration is not required.

For more information, see *Administering*.

## **OVSDB protocol support for VXLAN Gateway**

You can now configure and manage the VXLAN Gateway hardware-based VTEP functions with Open vSwitch Database Management Protocol (OVSDB). You must have at least one Network Virtualization Controller (NVC) configured as an Open vSwitch (OVS) to use the OVSDB features. The VXLAN Gateway must have OVSDB enabled and the Network Virtualization Controller (NVC) must communicate on the OVSDB managed interface. The NVC can manage the VNID, VNID to I-SID bindings, Remote-VTEP, and VNI to Remote-VTEP associations. You only need to manually configure the Source-VTEP and NVC IP addresses. The NVC distributes the hosts MAC and IP addresses learned by the VXLAN Gateway.

### **! Important:**

OVSDB protocol support for VXLAN Gateway is a demo feature. Do not use the OVSDB features in production environments.

The VXLAN Gateway on the switch terminates VXLAN tunnels and is known as a VXLAN tunnel endpoint (VTEP). The switch VXLAN Gateway is a hardware-based VTEP that allows VXLAN to communicate with VLANs, other VXLANs, as well as Fabric Connect I-SIDs.

For more information, see *Configuring VXLAN Gateway*.

## **Read-Only user for EDM**

This release introduces support for read-only (RO) users in addition to the existing RWA user for EDM.

For more information, see *Using CLI and EDM*.

## Segmented Management Instance

A Segmented Management Instance is required to provide access to specific management applications. After you create the Management Instance, you can add an IP address to it and configure route redistribution to advertise reachability of the Management Instance to the rest of the network. The first management application to use the Management Instance is NTPv4.

For more information, see *Administering*.

## Zero Touch Fabric configuration

Zero Touch Fabric configuration automatically configures the SPBM/IS-IS parameters on a switch without user intervention when the `boot config flag factorydefaults` command is set to `fabric`. After starting up in fabric mode, the switch can join the SPBM network through connected Fabric Area Network (FAN) ports.

### Fabric Area Network (FAN) :

Fabric Area Network (FAN) provides a Layer 2 domain over which applications running on the SPB switches can communicate. It also provides a transit service for FAN traffic that originates on other switches. The SPB switches signal their interest in joining the FAN and the IS-IS SPF uses an internal reserved I-SID (16777001) to create a multicast domain for these switches to communicate with each other. The FAN requires no user configuration.

For more information, see *Configuring Fabric Basics and Layer 2 Services*.

### auto-nni command:

Zero Touch Fabric configuration uses the `auto-nni` command to automatically establish NNI adjacencies. The `auto-nni` command provides a quick and simple way to configure the IS-IS interface. The `auto-nni` command runs the following existing IS-IS commands on the physical (port) interface:

- `isis`
- `isis spbm instance`
- `isis enable`

The existing commands are still available and you have the option to use the new command or the three existing commands. If you need to modify any of the default parameters under `isis` or `isis spbm instance`, use `isis` and `isis spbm instance` constructs even if you created the interface with the `auto-nni` command.

You can also use Enterprise Device Manager (EDM) to create IS-IS interfaces. On the Insert Interfaces dialog box, select **AutoNniEnable** to have the node create an IS-IS interface, attach the interface to an SPBM instance, and then enable IS-IS on the port interface.

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## 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 *Administering*.

In VOSS 4.2 and later, the encryption modules are included as part of the standard runtime software image file.

Prior to VOSS 4.2.1, image filenames began with VSP, for example, `VSP4K4.1.0.0.tgz`. In VOSS 4.2.1 and later, image filenames start with VOSS, for example, `VOSS8K4.2.1.0.tgz`.

The following table provides the filenames and sizes for this release.

**Table 1: Software Filenames and Sizes**

<b>Description</b>	<b>VSP 4000 Series</b>	<b>VSP 7200 Series</b>	<b>VSP 8000 Series</b>
SHA512 Checksum files	VOSS4K.7.0.0.0.sha512 1,378 bytes	VOSS7K.7.0.0.0.sha512 1,375 bytes	VOSS8K.7.0.0.0.sha512 1,535 bytes
MD5 Checksum files	VOSS4K.7.0.0.0.md5 514 bytes	VOSS7K.7.0.0.0.md5 511 bytes	VOSS8K.7.0.0.0.md5 575 bytes
MIB - supported object names	VOSS4K. 7.0.0.0_mib_sup.txt 1,253,497 bytes	VOSS7K. 7.0.0.0_mib_sup.txt 1,256,872 bytes	VOSS8K. 7.0.0.0_mib_sup.txt 1,256,872 bytes
MIB - zip file of all MIBs	VOSS4K.7.0.0.0_mib.zip 1,116,051 bytes	VOSS7K.7.0.0.0_mib.zip 1,116,051 bytes	VOSS8K.7.0.0.0_mib.zip 1,116,051 bytes
MIB - objects in the OID compile order	VOSS4K.7.0.0.0_mib.txt 7,402,309 bytes	VOSS7K.7.0.0.0_mib.txt 7,402,309 bytes	VOSS8K.7.0.0.0_mib.txt 7,402,309 bytes
EDM plug-in for COM	VSP4000v7.0.0.0.zip 5,497,239 bytes	VOSSv7.0.0.0.zip 5,846,232 bytes	VOSSv7.0.0.0.zip 5,846,232 bytes
EDM Help files	VSP4000v700_HELP_EDM_gzip.zip 3,891,200 bytes	VOSSv700_HELP_EDM_gzip.zip 3,919,872 bytes	VOSSv700_HELP_EDM_gzip.zip 3,919,872 bytes
Logs reference	VOSS4K. 7.0.0.0_edoc.tar 64,839,680 bytes	VOSS7K. 7.0.0.0_edoc.tar 64,839,680 bytes	VOSS8K. 7.0.0.0_edoc.tar 64,839,680 bytes
Software image	VOSS4K.7.0.0.0.tgz 142,610,562 bytes	VOSS7K.7.0.0.0.tgz 101,603,103 bytes	VOSS8K.7.0.0.0.tgz 157,360,403 bytes

The following table provides the open source software filenames and sizes for this release.



**Table 2: Open Source Software Files**

Description	VSP 4000 Series	VSP 7200 Series	VSP 8000 Series
Open source base software	VOSS4K.7.0.0.0_OpenSource.zip 95,871,740 bytes	VOSS7K.7.0.0.0_OpenSource.zip 95,871,740 bytes	VOSS8K.7.0.0.0_OpenSource.zip 95,871,740 bytes
Master copyright file	VOSS4K.7.0.0.0_oss-notice.html 2,403,273 bytes	VOSS7K.7.0.0.0_oss-notice.html 2,403,273 bytes	VOSS8K.7.0.0.0_oss-notice.html 2,403,273 bytes

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.

# Chapter 3: Upgrade Considerations

See the *Administering* document for detailed image management procedures that includes information about the following specific upgrade considerations:

- Notes for systems using IPv6 static neighbors
- Pre-upgrade instructions for IS-IS metric type
- Upgrade considerations regarding MACsec replay-protect configuration
- Upgrade support for the nni-mstp boot configuration flag
- Upgrade considerations for IS-IS enabled links with HMAC-MD5 authentication
- Considerations for IPv6 VRRP or DHCP Relay configurations saved in VOSS 4.1 or 4.2
- TACACS+ upgrade consideration

If your configuration includes one of the preceding scenarios, read the upgrade information in *Administering* before you begin an image upgrade.

## Important:

*Notice for VSP 4450GSX-PWR+, VSP 4450GSX, VSP 4450GTX-HT-PWR+, VSP 7200 Series, VSP 8200, and VSP 8400*

For these switch models running VOSS versions earlier than VOSS 6.1.x, you must first upgrade to VOSS 6.1.x before you can upgrade to VOSS 7.0 and later. Ensure that you save and back up your existing configuration before and after you upgrade to the intermediate 6.1.x release.

The same restriction applies to downgrades from VOSS 7.0 and later to releases earlier than VOSS 6.1.x. You must first downgrade to VOSS 6.1.x.

---

## Supported Upgrade Paths

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

### **Supported Upgrade Paths for VSP 4450GSX-PWR+, VSP 4450GSX, VSP 4450GTX-HT-PWR+, VSP 7200 Series, VSP 8200, and VSP 8400**

Validated upgrade paths are VOSS 6.1.x to VOSS 7.0

This release introduces a new Linux kernel on these switch models. Upgrades to this release (7.0) are only supported from VOSS 6.1.x.

For these switch models running older VOSS versions, you must first upgrade to 6.1.x before you can upgrade to VOSS 7.0. Ensure that you save and back up your existing configuration before and after you upgrade to the intermediate 6.1.x release.

**! Important:**

If you upgrade to VOSS 7.0 and then need to downgrade to a release earlier than VOSS 6.1.x, you must also do so in steps by first downgrading to a VOSS 6.1.x release before downgrading to the desired release.

**Supported Upgrade Paths for VSP 4850GTS and VSP 4850GTS-PWR+**

Validated upgrade paths are VOSS 6.1.x to VOSS 7.0

VOSS 6.1.0.0 was validated from VOSS 5.1.1.x, VOSS 5.1.2.x, or VOSS 6.0.1.x.

At the time of publishing this document, there were no known restrictions on upgrades for VSP 4850GTS and VSP 4850GTS-PWR+. Customers can upgrade directly from other releases to this release. For non-validated upgrade paths, perform the upgrade with one or two switches initially before doing a widespread upgrade. Note that releases earlier than Release 5.1.1.x have reached the End of Manufacturer Support stage in their lifecycle and have therefore not been validated.

---

## Upgrading DvR Configurations from Releases 6.0.1.1 and Earlier to 6.0.1.2 and Later

Upgrade all DvR nodes to the same release as quickly as possible. Release 6.0.1.2 includes changes to I-SID ranges that are utilized for DvR communication, and thus introduces an incompatibility with DvR nodes running 6.0.1.1 and earlier, with 6.0.1.2 and beyond.

**! Important:**

Because of the change in 6.0.1.2, Extreme Networks recommends a *minimum* software version of 6.0.1.2 in DvR deployments.

Upgrade all DvR Leaf nodes first to minimize the impact of this incompatibility and the resulting loss of connectivity between DvR Controller nodes and Leaf nodes while nodes are at incompatible versions. After you upgrade all Leaf nodes, upgrade the Controller nodes, which restores DvR connectivity to the already upgraded Leaf nodes.

**\* Note:**

During the period of time when the Leaf nodes and Controller nodes are running incompatible versions, no DvR connectivity exists between the Controller and Leaf nodes so plan this activity accordingly, such as during a maintenance window.

If you cannot perform the upgrade during a maintenance window, use the following upgrade order to minimize connectivity loss:

1. Upgrade one of the DvR Controller nodes (vIST cluster member).
2. Upgrade the first DvR Leaf vIST cluster member.
3. Upgrade the second DvR Leaf vIST cluster member.

4. Upgrade the other DvR Controller.

By following the preceding list, you upgrade the first Controller and make it ready for the Leaf nodes as you upgrade them. The other Controller still uses the original software version to accommodate Leaf nodes yet to upgrade, which allows you to upgrade them one at a time. Upgrade the other Controller last. With this upgrade order, only the node you are upgrading experiences a connectivity loss.

### Upgrading DvR Configuration from 6.0.1.0 or 6.0.1.1 to 6.1.x.x

To upgrade DvR Leaf nodes:

1. Use the `no dvr leaf virtual-ist` command on the Leaf nodes if vIST is configured.
2. Use the `no dvr leaf` command on the Leaf nodes.

**!** **Important:**

Do not save the configuration.

3. Upgrade the software to 6.1.x.x on the Leaf nodes, and then reboot the nodes.

To upgrade DvR Controllers:

1. Use the `no dvr controller` command on the Controllers.

**!** **Important:**

Do not save the configuration.

2. Upgrade the software to 6.1.x.x on the Controllers, and then reboot the Controllers.

---

## Syslog RFC 5424 and XMC Integration

For existing customers with saved configurations prior to VOSS 6.1.2.0 who are parsing the non RFC 5424 syslog format, the device defaults to the old format. When XMC registers for syslog, it configures it to the RFC 5424 format and automatically changes the syslog and log formats.

---

## Post Upgrade Configuration for Zero Touch Fabric configuration or Dynamic Nickname Assignment

If you want to use either or both of these features in VOSS 7.0, the following sections identify the possible configuration combinations:

- [Option 1: Enable Zero Touch Fabric Connect configuration and Dynamic Nickname](#) on page 21
- [Option 2: Enable Dynamic Nickname Assignment](#) on page 21
- [Option 3: Enable Zero Touch Fabric Connect configuration](#) on page 22

- [Option 4: Disable Zero Touch Fabric Connect configuration and Dynamic Nickname Assignment](#) on page 23

For general steps about how to upgrade the switch software, see *Administering*.

### **Option 1: Enable Zero Touch Fabric configuration and Dynamic Nickname Assignment**

1. Start the nodes with the VOSS 7.0 image in factory-default fabric mode.
  - Factory default fabric mode enables Zero Touch Fabric configuration.
  - The switch configures SPBM and IS-IS to the following default values:
    - SPBM instance 1
    - Primary BVID 4051 and secondary BVID 4052
    - System ID uses default value (derived from the chassis base MAC)
    - Manual area and nickname are zero
  - The switch creates and enables IS-IS interfaces on FAN ports.
2. IS-IS adjacencies are not formed.
3. IS-IS interfaces are in listening mode. These interfaces do not send HELLO PDUs because there is no IS-IS manual area configured. These interfaces listen for incoming HELLO PDUs
4. The node learns the IS-IS manual area from the first HELLO PDU it receives on any IS-IS interface. This learned area is called the Dynamically Learned Area (DLA).
5. The node uses the DLA to send HELLO PDUs on all active IS-IS interfaces and form adjacencies if the IS-IS parameters match.
6. If all nodes in the network started in Zero Touch Fabric configuration mode, configure the manual area on at least one to them, which has physical connectivity with the rest of the nodes using the FAN interfaces. This node is referred to as the *seed* node. The term seed node describes the starting event to build the SPB network if all nodes start in Zero Touch Fabric configuration mode.
7. If you insert the new node in a network where SPB is already configured and is connected using the FAN port to the node on its IS-IS interface, the adjacency with that node comes up if it uses the same default BVLANS mentioned above.
8. Because Dynamic Nickname Assignment is not configured yet, nodes become nickname clients. The clients become FAN members and start advertising FAN membership using TLV 147.
9. The FAN is established based on FAN endpoint membership.
10. Select a node and enable the nickname server.
11. After detecting a nickname server exists in the network, the nickname client sends a request for a nickname to the server.
12. The server assigns a nickname, which the client node learns.

### **Option 2: Enable Dynamic Nickname Assignment**

1. Start the nodes with the VOSS 7.0 image with the existing configuration.
  - Zero Touch Fabric configuration is not enabled.

- The SPBM and IS-IS configuration is based on the configuration file.
  - A manual area is configured.
2. Disable IS-IS.
  3. Remove static nicknames on all nodes.
  4. Nodes become nickname clients. The clients become FAN members and start advertising FAN membership using TLV 147.
  5. The FAN is established based on FAN endpoint membership.
  6. Select a node and enable the nickname server.
  7. After detecting a nickname server exists in the network, the nickname client sends a request for a nickname to the server.
  8. The server assigns a nickname, which the client node learns.

### **Option 3: Enable Zero Touch Fabric configuration**

1. Start the nodes with the VOSS 7.0 image in factory-default fabric mode.
  - Factory default fabric mode enables Zero Touch Fabric configuration.
  - The switch configures SPBM and IS-IS to the following default values:
    - SPBM instance 1
    - Primary BVID 4051 and secondary BVID 4052
    - System ID uses default value (derived from the chassis base MAC)
    - Manual area and nickname are zero
  - The switch creates and enables IS-IS interfaces on FAN ports.
2. IS-IS adjacencies are not formed.
3. IS-IS interfaces are in listening mode. These interfaces do not send HELLO PDUs because there is no IS-IS manual area configured. These interfaces listen for incoming HELLO PDUs
4. The node learns the IS-IS manual area from the first HELLO PDU it receives on any IS-IS interface. This learned area is called the Dynamically Learned Area (DLA).
5. The node uses the DLA to send HELLO PDUs on all active IS-IS interfaces and form adjacencies if the IS-IS parameters match.
6. If all nodes in the network started in Zero Touch Fabric configuration mode, configure the manual area on at least one to them, which has physical connectivity with the rest of the nodes using the FAN interfaces. This node is referred to as the *seed* node. The term seed node describes the starting event to build the SPB network if all nodes start in Zero Touch Fabric configuration mode.
7. If you insert the new node in a network where SPB is already configured and is connected using the FAN port to the node on its IS-IS interface, the adjacency with that node comes up if it uses the same default BVLANS mentioned above.
8. Configure static nicknames on all nodes.

#### **Option 4: Disable Zero Touch Fabric configuration and Dynamic Nickname Assignment**

1. Start the nodes with the VOSS 7.0 image with the existing configuration.
  - Zero Touch Fabric configuration is not enabled.
  - The SPBM and IS-IS configuration is based on the configuration file.
  - A manual area is configured.
  - Static nicknames are configured.
2. Dynamic Nickname Assignment server and clients do not start.

# Chapter 4: Hardware and Software Compatibility

This section lists the hardware compatibility for all VOSS platforms.

## VSP 4000 Series Hardware

Part number	Model number	Initial release	Supported new feature release				
			6.0	6.0.1	6.1	6.1.2	7.0
EC4400004-E6	VSP 4450GSX-DC	4.0.50	Y	Y	Y	Y	Y
EC4400A03-E6	VSP 4450GTX-HT-PWR+	4.0.40	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
EC4800078-E6	VSP 4850GTS-DC	3.0	Y	Y	Y	Y	Y
EC4800A78-E6 EC4800A78-E6GS	VSP 4850GTS	3.0	Y	Y	Y	Y	Y
EC4800A88-E6 EC4800A88-E6GS	VSP 4850GTS-PWR+	3.0	Y	Y	Y	Y	Y

### VSP 4000 Series Operational Note

 **Warning:**

The USB FLASH drive on all models of VSP 4850 (factory built and converted from ERS 4850) is a permanent non-removable part of the switch that you must NEVER remove from the switch to ensure proper operation. Additionally, you must install the USB cover to ensure additional protection against removal. The USB FLASH drive on the VSP 4850 switch is uniquely and permanently bound to the operating system of the switch it is first used on and cannot be transferred to a different switch. Removal (and reinsertion) of the USB FLASH drive from the switch is not supported as it can permanently compromise the switch functionality and render it non-functional.



## VSP 7200 Series Hardware

Part number	Model number	Initial release	Supported new feature release				
			6.0	6.0.1	6.1	6.1.2	7.0
EC720001F-E6	VSP 7254XSQ DC (front to back airflow)	4.2.1	Y	Y	Y	Y	Y
EC7200A1B-E6 EC7200A1F-E6 B represents back to front airflow. F represents 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 EC7200A2F-E6 B represents back to front airflow. F represents front to back airflow.	VSP 7254XTQ	4.2.1	Y	Y	Y	Y	Y
EC7200A3B-E6 EC7200A3F-E6 B represents back to front airflow. F represents front to back airflow.	VSP 7254XSQ Port Licensed	5.1	Y	Y	Y	Y	Y
EC7200A4B-E6 EC7200A4F-E6 B represents back to front airflow. F represents 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 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 8000 Series Hardware

Part number	Model number	Initial release	Supported new feature release				
			6.0	6.0.1	6.1	6.1.2	7.0
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
EC8400002-E6	VSP 8404C DC	5.3	N	N	Y	Y	Y
EC8400A02-E6 EC8200A02-E6GS	VSP 8404C	5.3	N	N	Y	Y	Y
Ethernet Switch Modules (ESM) — VSP 8400 only							
<p><b>!</b> <b>Important:</b></p> <p>Ensure the switch runs, at a minimum, the noted initial software release before you install an ESM.</p>							
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	N	N	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.

The following table indicates where to find more information about optical transceivers and components.

Extreme Networks optical transceivers and components	<i>Pluggable Transceivers Installation Guide</i> on the Extreme Networks documentation web site
Compatibility for Extreme Networks SFP, SFP+, QSFP+, and QSFP28 transceiver modules with the VSP series switches	<a href="#">VSP Components: SFP, SFP+, QSFP+, QSFP28 Support</a>
Optical transceivers and components previously branded as Avaya	<i>Installing Transceivers and Optical Components on VSP Operating System Software</i>

## Power Supply Compatibility

You can use certain power supplies in more than one VOSS platform. This section lists the power supplies and indicates the compatible platforms.

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

- *Installing the Virtual Services Platform 4850GTS Series*
- *Installing the Virtual Services Platform 4450GTX-HT-PWR+*
- *Installing the Virtual Services Platform 4450GSX-PWR+*
- *Installing the Virtual Services Platform 7200 Series*
- *Installing the Virtual Services Platform 8000 Series*

### VSP 4000 Series Power Supplies

Platform	300 W AC AL1905A08-E5	300 W DC AL1905005-E5	1,000 W AC AL1905A21-E6	1,000 W AC-HT EC4005A03-E6HT
VSP 4850GTS-DC	—	Y	—	—
VSP 4850GTS-PWR+	—	—	Y	Y
VSP 4850GTS	Y	—	—	—
VSP 4450GTX-HT-PWR+	—	—	—	Y
VSP 4450GSX-DC	—	Y	—	—
VSP 4450GSX-PWR+	—	—	Y	Y

**VSP 7200 Series and VSP 8000 Series Power Supplies**

<b>Platform</b>	<b>460 W AC front-to-back EC7205A1F -E6</b>	<b>460 W AC back-to-front EC7205A1B -E6</b>	<b>800 W AC front-to-back EC8005A01 -E6</b>	<b>800 W AC front-to-back EC7205A0F -E6</b>	<b>800 W AC back-to-front EC7205A0B -E6</b>	<b>800 W DC front-to-back EC8005001- E6</b>
VSP 8284XSQ	—	—	Y	—	—	—
VSP 8284XSQ DC	—	—	—	—	—	Y
VSP 8404	—	—	Y	—	—	—
VSP 8404 DC	—	—	—	—	—	Y
VSP 8404C	—	—	Y	—	—	—
VSP 8404C DC	—	—	—	—	—	Y
VSP 7254XSQ front-to-back	Y	—	—	—	—	—
VSP 7254XSQ back-to-front	—	Y	—	—	—	—
VSP 7254XTQ front-to-back	—	—	—	Y	—	—
VSP 7254XTQ back-to-front	—	—	—	—	Y	—
VSP 7254XSQ DC	—	—	—	—	—	Y
VSP 7254XTQ DC	—	—	—	—	—	Y

# Chapter 5: Scaling

This section documents scaling capabilities of the VOSS platforms.

## Layer 2

**Table 3: Layer 2 Maximums**

Attribute	Product	Maximum number supported
Directed Broadcast interfaces * <b>Note:</b> 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.	VSP 4000 Series	n/a
	VSP 7200 Series	200 See Note.
	VSP 8000 Series	200 See Note.
MAC table size (without SPBM)	VSP 4000 Series	32,000
	VSP 7200 Series	224,000
	VSP 8000 Series	224,000
MAC table size (with SPBM)	VSP 4000 Series	16,000
	VSP 7200 Series	112,000
	VSP 8000 Series	112,000
Port-based VLANs	VSP 4000 Series	4,059
	VSP 7200 Series	4,059
	VSP 8000 Series	4,059
Private VLANs	VSP 4000 Series	200
	VSP 7200 Series	200
	VSP 8000 Series	VSP 8404C = 400 Other VSP 8000 Series platforms = 200
Protocol-based VLANs (IPv6 only)	VSP 4000 Series	1

*Table continues...*

Attribute	Product	Maximum number supported
	VSP 7200 Series	1
	VSP 8000 Series	1
RSTP instances	VSP 4000 Series	1
	VSP 7200 Series	1
	VSP 8000 Series	1
MSTP instances	VSP 4000 Series	12
	VSP 7200 Series	12
	VSP 8000 Series	12
LACP aggregators	VSP 4000 Series	24
	VSP 7200 Series	54 (up to 72 with channelization)
	VSP 8000 Series	84 (up to 96 with channelization)
Ports per LACP aggregator	VSP 4000 Series	8 active
	VSP 7200 Series	8 active
	VSP 8000 Series	8 active
MLT groups	VSP 4000 Series	50
	VSP 7200 Series	54 (up to 72 with channelization)
	VSP 8000 Series	84 (up to 96 with channelization)
Ports per MLT group	VSP 4000 Series	8
	VSP 7200 Series	8
	VSP 8000 Series	8
LST groups	VSP 4000 Series	48
	VSP 7200 Series	48
	VSP 8000 Series	48
Interfaces per LST group	VSP 4000 Series	8 upstream 128 downstream
	VSP 7200 Series	8 upstream 128 downstream
	VSP 8000 Series	8 upstream 128 downstream
SLPP VLANs	VSP 4000 Series	128
	VSP 7200 Series	128

*Table continues...*

Attribute	Product	Maximum number supported
	VSP 8000 Series	128
VLACP interfaces	VSP 4000 Series	50
	VSP 7200 Series	54 (up to 72 with channelization)
	VSP 8000 Series	84 (up to 96 with channelization)
Microsoft NLB cluster IP interfaces <b>* Note:</b> 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.	VSP 4000 Series	n/a
	VSP 7200 Series	200 See Note.
	VSP 8000 Series	200 See Note.

## IP Unicast

**Table 4: IP Unicast Maximums**

Attribute	Product	Maximum number supported
<b>* Note:</b> The maximum number of IP interfaces is based on the following formulas: <ul style="list-style-type: none"> <li>If you disable the VRF scaling boot configuration flag:               <ul style="list-style-type: none"> <li>- = 506 – (# of VRRP IPv4 interfaces) - (# of VRRP IPv6 interfaces) – (# of RSMLT interfaces) – 2 (if IP Shortcuts is enabled) – 3x(# of VRFs)</li> </ul> </li> </ul>		

*Table continues...*



Attribute	Product	Maximum number supported
<ul style="list-style-type: none"> <li>If you enable the VRF scaling boot configuration flag: <ul style="list-style-type: none"> <li>= 506 – (# of VRRP IPv4 interfaces) – (# of VRRP IPv6 interfaces) - (# of RSMLT interfaces) – 2 (if IP Shortcuts is enabled) – 3</li> </ul> </li> </ul>		
IP interfaces (IPv4 or IPv6 or IPv4+IPv6)	VSP 4000 Series	256
	VSP 7200 Series	506 See Note.
	VSP 8000 Series	VSP 8404C = 503 Other VSP 8000 Series platforms = 506 See Note.
VRRP interfaces (IPv4 or IPv6)	VSP 4000 Series	64
	VSP 7200 Series	252 See Note.
	VSP 8000 Series	252 See Note.
Routed Split Multi-Link Trunking (RSMLT) interfaces (IPv4 or IPv6 or IPv4+IPv6)	VSP 4000 Series	252
	VSP 7200 Series	252 See Note.
	VSP 8000 Series	252 See Note.
VRRP interfaces with fast timers (200ms) - IPv4/IPv6	VSP 4000 Series	24
	VSP 7200 Series	24
	VSP 8000 Series	24
DvR Virtual IP interfaces	VSP 4000 Series	501 with vIST 502 without vIST
	VSP 7200 Series	501 with vIST 502 without vIST
	VSP 8000 Series	501 with vIST 502 without vIST
ECMP groups/paths per group	VSP 4000 Series	500/4
	VSP 7200 Series	1,000/8
	VSP 8000 Series	1,000/8
OSPF v2/v3 interfaces	VSP 4000 Series	100
	VSP 7200 Series	500

Table continues...

## Scaling

Attribute	Product	Maximum number supported
	VSP 8000 Series	500
OSPF v2/v3 neighbors (adjacencies)	VSP 4000 Series	100
	VSP 7200 Series	500
	VSP 8000 Series	500
OSPF areas	VSP 4000 Series	12 for each VRF 64 for the switch
	VSP 7200 Series	12 for each VRF 80 for the switch
	VSP 8000 Series	12 for each VRF 80 for the switch
IPv4 ARP table	VSP 4000 Series	6,000
	VSP 7200 Series	32,000
	VSP 8000 Series	32,000
IPv4 CLIP interfaces	VSP 4000 Series	64
	VSP 7200 Series	64
	VSP 8000 Series	64
IPv4 RIP interfaces	VSP 4000 Series	24
	VSP 7200 Series	200
	VSP 8000 Series	200
IPv4 BGP peers	VSP 4000 Series	12
	VSP 7200 Series	12
	VSP 8000 Series	12
IPv4 VRF instances For additional information, see <a href="#">VRF Scaling</a> on page 52.	VSP 4000 Series	128 including GRT
	VSP 7200 Series	256 including mgmt VRF and GRT
	VSP 8000 Series	256 including mgmt VRF and GRT
IPv4 static ARP entries	VSP 4000 Series	200 for each VRF 1,000 for the switch
	VSP 7200 Series	2,000 for each VRF 10,000 for the switch
	VSP 8000 Series	2,000 for each VRF 10,000 for the switch
IPv4 static routes	VSP 4000 Series	1,000 for each VRF

*Table continues...*

Attribute	Product	Maximum number supported
		1,000 for the switch
	VSP 7200 Series	1,000 for each VRF 5,000 for the switch
	VSP 8000 Series	1,000 for each VRF 5,000 for the switch
IPv4 route policies	VSP 4000 Series	500 for each VRF 5,000 for the switch
	VSP 7200 Series	500 for each VRF 5,000 for the switch
	VSP 8000 Series	500 for each VRF 5,000 for the switch
IPv4 UDP forwarding entries	VSP 4000 Series	128
	VSP 7200 Series	512
	VSP 8000 Series	512
IPv4 DHCP Relay forwarding entries	VSP 4000 Series	128
	VSP 7200 Series	1,024
	VSP 8000 Series	1,024
IPv6 DHCP Snoop entries in Source Binding Table	VSP 4000 Series	1,024
	VSP 7200 Series	1,024
	VSP 8000 Series	1,024
IPv6 Neighbor table	VSP 4000 Series	4,000
	VSP 7200 Series	8,000
	VSP 8000 Series	8,000
IPv6 static entries in Source Binding Table	VSP 4000 Series	256
	VSP 7200 Series	256
	VSP 8000 Series	256
IPv6 static neighbor records	VSP 4000 Series	128
	VSP 7200 Series	128 per VRF 512 per system
	VSP 8000 Series	128 per VRF 512 per system
IPv6 CLIP interfaces	VSP 4000 Series	64
	VSP 7200 Series	64
	VSP 8000 Series	64

*Table continues...*

Attribute	Product	Maximum number supported
IPv6 static routes	VSP 4000 Series	1,000
	VSP 7200 Series	1,000
	VSP 8000 Series	1,000
IPv6 6in4 configured tunnels	VSP 4000 Series	254
	VSP 7200 Series	506
	VSP 8000 Series	506
IPv6 DHCP Relay forwarding	VSP 4000 Series	128
	VSP 7200 Series	512
	VSP 8000 Series	512
IPv6 RIPng interfaces	VSP 4000 Series	24
	VSP 7200 Series	48
	VSP 8000 Series	48
IPv6 BGP peers	VSP 4000 Series	24 Up to 8,000 IPv6 prefixes for BGPv6 peering
	VSP 7200 Series	24 Up to 8,000 IPv6 prefixes for BGPv6 peering
	VSP 8000 Series	24 Up to 8,000 IPv6 prefixes for BGPv6 peering

## Layer 3 Route Table Size

**Table 5: Layer 3 Route Table Size Maximums**

Attribute	Maximum number supported
IPv4 RIP routes	See <a href="#">Route Scaling</a> on page 49.
IPv4 OSPF routes	
IPv4 BGP routes	
IPv4 SPB shortcut routes	
IPv4 SPB Layer 3 VSN routes	
IPv6 OSPFv3 routes - GRT only	

*Table continues...*

Attribute	Maximum number supported
IPv6 SPB shortcut routes - GRT only	
IPv6 RIPng routes	

## IP Multicast

**Table 6: IP Multicast Maximums**

Attribute	Product	Maximum number supported
Combination of VLANs + number of IPv4 senders + IPv6 senders (non-SPBM mode)	VSP 4000 Series	4,059
	VSP 7200 Series	8,192
	VSP 8000 Series	8,192
Combination of Layer 2 VSNs + number of IPv4 senders + number of IPv6 senders (SPBM mode)	VSP 4000 Series	4,059
	VSP 7200 Series	8,192
	VSP 8000 Series	8,192
IGMP/MLD interfaces (IPv4/IPv6)	VSP 4000 Series	4,059
	VSP 7200 Series	4,059
	VSP 8000 Series	4,059
PIM interfaces (IPv4/IPv6)	VSP 4000 Series	128 Active
	VSP 7200 Series	128 Active
	VSP 8000 Series	128 Active
PIM Neighbors (IPv4/IPv6) (GRT Only)	VSP 4000 Series	128
	VSP 7200 Series	128
	VSP 8000 Series	128
PIM-SSM static channels (IPv4/IPv6)	VSP 4000 Series	512
	VSP 7200 Series	4,000
	VSP 8000 Series	4,000
Multicast receivers/IGMP joins (IPv4/IPv6) (per switch)	VSP 4000 Series	1,000
	VSP 7200 Series	6,000
	VSP 8000 Series	6,000
Total multicast routes (S,G,V) (IPv4/IPv6) (per switch)	VSP 4000 Series	1,000
	VSP 7200 Series	6,000
	VSP 8000 Series	6,000

*Table continues...*

## Scaling

Attribute	Product	Maximum number supported
Total multicast routes (S,G,V) (IPv4) on an SPB-PIM Gateway configured switch	VSP 4000 Series	1,000
	VSP 7200 Series	3,000
	VSP 8000 Series	3,000
Static multicast routes (S,G,V) (IPv4/IPv6)	VSP 4000 Series	512
	VSP 7200 Series	4,000
	VSP 8000 Series	4,000
Multicast enabled Layer 2 VSN (IPv4)	VSP 4000 Series	1,000
	VSP 7200 Series	2,000
	VSP 8000 Series	2,000
Multicast enabled Layer 3 VSN (IPv4)	VSP 4000 Series	128 including mgmt VRF and GRT
	VSP 7200 Series	256 including mgmt VRF and GRT
	VSP 8000 Series	256 including mgmt VRF and GRT
SPB-PIM Gateway controller S,Gs (source announcements) with MSDP (IPv4)	VSP 4000 Series	6,000
	VSP 7200 Series	6,000
	VSP 8000 Series	6,000
SPB-PIM Gateway controllers per SPB fabric (IPv4)	VSP 4000 Series	5
	VSP 7200 Series	5
	VSP 8000 Series	5
SPB-PIM Gateway nodes per SPB fabric (IPv4)	VSP 4000 Series	64
	VSP 7200 Series	64
	VSP 8000 Series	64
SPB-PIM Gateway interfaces per BEB (IPv4)	VSP 4000 Series	64
	VSP 7200 Series	64
	VSP 8000 Series	64
PIM neighbors per SPB-PIM Gateway node (IPv4)	VSP 4000 Series	64
	VSP 7200 Series	64
	VSP 8000 Series	64

## Distributed Virtual Routing (DvR)

**Table 7: DvR Maximums**

Attribute	Product	Maximum number supported
<p><b>* Note:</b></p> <ul style="list-style-type: none"> <li>On the DvR leaf, you must enable the VRF scaling boot configuration flag if more than 24 VRFs are required in the DvR domain.</li> <li>Scaling of the VSP 4000 controls the scaling of the DvR domain it is in. For example, if a VSP 4000 is in a DvR domain with other platforms such as VSP 7200s and VSP 8000s, the scaling of the entire domain is limited to the scaling of the VSP 4000.</li> </ul>		
DvR Virtual IP interfaces	VSP 4000 Series	501 with vIST 502 without vIST
	VSP 7200 Series	501 with vIST 502 without vIST
	VSP 8000 Series	501 with vIST 502 without vIST
DvR domains per SPB fabric	VSP 4000 Series	16
	VSP 7200 Series	16
	VSP 8000 Series	16
Controller nodes per DvR domain with default route inject flag enabled  Total number of Controllers per domain cannot exceed 8.	VSP 4000 Series	n/a
	VSP 7200 Series	8
	VSP 8000 Series	8
<p><b>* Note:</b></p> <p>A DvR domain containing only Controller nodes and no Leaf nodes can have more than 8 Controllers per domain.</p>		
Leaf nodes per DvR domain	VSP 4000 Series	250
	VSP 7200 Series	250
	VSP 8000 Series	250
DvR enabled Layer 2 VSNs	VSP 4000 Series	501 with vIST 502 without vIST
	VSP 7200 Series	501 with vIST 502 without vIST
	VSP 8000 Series	501 with vIST

*Table continues...*

Attribute	Product	Maximum number supported
		502 without vIST
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)  Total host route scaling across all domains cannot exceed 32,000.	VSP 4000 Series	6,000
	VSP 7200 Series	32,000
	VSP 8000 Series	32,000

## VXLAN Gateway

**Table 8: VXLAN Gateway Maximums**

Attribute	Product	Maximum number supported
MAC addresses in base interworking mode	VSP 4000 Series	n/a
	VSP 7200 Series	112,000
	VSP 8000 Series	112,000
MAC addresses in full interworking mode	VSP 4000 Series	n/a
	VSP 7200 Series	74,000
	VSP 8000 Series	74,000
VNI IDs per node	VSP 4000 Series	n/a
	VSP 7200 Series	2,000
	VSP 8000 Series	VSP 8404C = 4,000 Other VSP 8000 Series platforms = 2,000
VTEP destinations per node or VTEP	VSP 4000 Series	n/a
	VSP 7200 Series	500
	VSP 8000 Series	500

The following table provides maximum numbers for OVSDB protocol support for VXLAN Gateway, which is supported in this release as a demo feature only.

**Table 9: OVSDB protocol support for VXLAN Gateway Maximums**

Attribute	Product	Maximum number supported
Maximum controllers to which a single VTEP switch can connect	VSP 4000 Series	n/a

*Table continues...*



Attribute	Product	Maximum number supported
	VSP 7200 Series	3
	VSP 8000 Series	3

## Filters, QoS, and Security

**Table 10: Filters, QoS, and Security Maximums**

Attribute	Product	Maximum number supported
For more information, see <a href="#">Filter Scaling</a> on page 50.		
Total IPv4 Ingress rules/ACEs (Port/VLAN/InVSN based, Security/QoS filters)	VSP 4000 Series	1,020
	VSP 7200 Series	766
	VSP 8000 Series	VSP 8404C = 3,070 Other VSP 8000 Series platforms = 766
Total IPv4 Egress rules/ACEs (Port based, Security filters)	VSP 4000 Series	255 200 if you enable the ipv6-egress-filter boot configuration flag
	VSP 7200 Series	252 200 if you enable the ipv6-egress-filter boot configuration flag
	VSP 8000 Series	VSP 8404 and 8404C = 251 Other VSP 8000 Series platforms = 252 200 if you enable the ipv6-egress-filter boot configuration flag
Total IPv6 Ingress rules/ACEs (Port/VLAN/InVSN based, Security/QoS filters)	VSP 4000 Series	255
	VSP 7200 Series	256
	VSP 8000 Series	VSP 8404 = 511 VSP 8404C = 2,047 Other VSP 8000 Series platforms = 256

*Table continues...*

Attribute	Product	Maximum number supported
Total IPv6 egress rules/ACEs (Port based, Security filters)	VSP 4000 Series	256
	VSP 7200 Series	256
	VSP 8000 Series	256
EAP and NEAP (clients per port) <b>* Note:</b> The total of EAP clients plus NEAP clients per port or per switch cannot exceed 8,192.	VSP 4000 Series	32 for EAP 8,192 for NEAP
	VSP 7200 Series	32 for EAP 8,192 for NEAP
	VSP 8000 Series	32 for EAP 8,192 for NEAP

## OAM and Diagnostics

Table 11: OAM and Diagnostics Maximums

Attribute	Product	Maximum number supported
EDM sessions	VSP 4000 Series	5
	VSP 7200 Series	5
	VSP 8000 Series	5
FTP sessions (IPv4/IPv6)	VSP 4000 Series	8 total (4 for IPv4 and 4 for IPv6)
	VSP 7200 Series	8 total (4 for IPv4 and 4 for IPv6)
	VSP 8000 Series	8 total (4 for IPv4 and 4 for IPv6)
Rlogin sessions (IPv4/IPv6)	VSP 4000 Series	16 total (8 for IPv4 and 8 for IPv6)
	VSP 7200 Series	16 total (8 for IPv4 and 8 for IPv6)
	VSP 8000 Series	16 total (8 for IPv4 and 8 for IPv6)
SSH sessions (IPv4/IPv6)	VSP 4000 Series	8 total (any combination of IPv4 and IPv6)
	VSP 7200 Series	8 total (any combination of IPv4 and IPv6)

Table continues...

Attribute	Product	Maximum number supported
	VSP 8000 Series	8 total (any combination of IPv4 and IPv6)
Telnet sessions (IPv4/IPv6)	VSP 4000 Series	16 total (8 for IPv4 and 8 for IPv6)
	VSP 7200 Series	16 total (8 for IPv4 and 8 for IPv6)
	VSP 8000 Series	16 total (8 for IPv4 and 8 for IPv6)
TFTP sessions (IPv4/IPv6)	VSP 4000 Series	2 total (any combination of IPv4 and IPv6)
	VSP 7200 Series	2 total (any combination of IPv4 and IPv6)
	VSP 8000 Series	2 total (any combination of IPv4 and IPv6)
Mirrored ports (source)	VSP 4000 Series	49
	VSP 7200 Series	53 (up to 71 with channelization)
	VSP 8000 Series	83 (up to 95 with channelization)
Mirroring ports (destination)	VSP 4000 Series	4
	VSP 7200 Series	4
	VSP 8000 Series	4
Fabric RSPAN Port mirror instances per switch (Ingress only)	VSP 4000 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 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.
Fabric RSPAN Flow mirror instances per switch (Ingress only)	VSP 4000 Series	Filter ACL ACE sessions can be mapped to only 1 mirror I-SID offset.

*Table continues...*

Attribute	Product	Maximum number supported
	VSP 7200 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.
Fabric RSPAN Monitoring I-SIDs (network value)	VSP 4000 Series	1,000 Monitoring I-SIDs across SPB network
	VSP 7200 Series	1,000 Monitoring I-SIDs across SPB network
	VSP 8000 Series	1,000 Monitoring I-SIDs across SPB network
sFlow sampling limit	VSP 4000 Series	100 samples per second
	VSP 7200 Series	3,000 samples per second
	VSP 8000 Series	3,000 samples per second

## Fabric Scaling

This section lists the fabric scaling information.

**Table 12: Fabric Maximums**

Attribute	Product	vIST configuration	vIST not configured
Number of SPB regions	VSP 4000 Series	1	1
	VSP 7200 Series	1	1
	VSP 8000 Series	1	1
Number of B-VIDs	VSP 4000 Series	2	2
	VSP 7200 Series	2	2
	VSP 8000 Series	2	2
Maximum number of Physical and Logical (Fabric Extend) NNI interfaces/adjacencies	VSP 4000 Series	VSP 4450 = 255 VSP 4850 = 24	VSP 4450 = 255 VSP 4850 = 24
	VSP 7200 Series	255	255
	VSP 8000 Series	255	255
SPBM enabled nodes per area (BEB + BCB)	VSP 4000 Series	550	550
	VSP 7200 Series	800	800
	VSP 8000 Series	800	800

*Table continues...*

Attribute	Product	vIST configuration	vIST not configured
Number of BEBs this node can share services with (Layer 2 VSNs, Layer 3 VSNs, E-Tree, Multicast, Transparent Port UNI).  * <b>Note:</b>  vIST clusters are counted as 3 nodes. Each Fabric Extend IS-IS adjacency or VXLAN remote VTEP reduces this number by 1.	VSP 4000 Series	500	500
	VSP 7200 Series	500	500
	VSP 8000 Series	500	500
Maximum number of vIST/IST clusters this node can share I-SIDs with	VSP 4000 Series	500	500
	VSP 7200 Series	330	330
	VSP 8000 Series	330	330
Layer 2 MAC table size (with SPBM)	VSP 4000 Series	16,000	16,000
	VSP 7200 Series	112,000	112,000
	VSP 8000 Series	112,000	112,000
I-SIDs supported	VSP 4000 Series	See <a href="#">Number of I-SIDs supported</a> on page 47	See <a href="#">Number of I-SIDs supported</a> on page 47
	VSP 7200 Series	See <a href="#">Number of I-SIDs supported</a> on page 47	See <a href="#">Number of I-SIDs supported</a> on page 47
	VSP 8000 Series	See <a href="#">Number of I-SIDs supported</a> on page 47	See <a href="#">Number of I-SIDs supported</a> on page 47
Maximum number of Layer 2 VSNs per switch	VSP 4000 Series	1,000	1,000
	VSP 7200 Series	4,059	4,059
	VSP 8000 Series	4,059	4,059
Maximum number of Switched UNI I-SIDs per switch	VSP 4000 Series	See <a href="#">Number of I-SIDs supported</a> on page 47	See <a href="#">Number of I-SIDs supported</a> on page 47
	VSP 7200 Series	See <a href="#">Number of I-SIDs supported</a> on page 47	See <a href="#">Number of I-SIDs supported</a> on page 47
	VSP 8000 Series	See <a href="#">Number of I-SIDs supported</a> on page 47	See <a href="#">Number of I-SIDs supported</a> on page 47
Maximum number of Transparent Port UNIs per switch	VSP 4000 Series	48	48
	VSP 7200 Series	54 (up to 72 with channelization)	54 (up to 72 with channelization)

Table continues...

Attribute	Product	vIST configuration	vIST not configured
	VSP 8000 Series	84 (up to 96 with channelization)	84 (up to 96 with channelization)
Maximum number of E-Tree PVLAN UNIs per switch	VSP 4000 Series	200	200
	VSP 7200 Series	200	200
	VSP 8000 Series	VSP 8404C = 400 Other VSP 8000 Series platforms = 200	VSP 8404C = 400 Other VSP 8000 Series platforms = 200
Maximum number of Layer 3 VSNs per switch  See <a href="#">VRF Scaling</a> on page 52.	VSP 4000 Series	128 including mgmt VRF and GRT	128 including mgmt VRF and GRT
	VSP 7200 Series	256 including mgmt VRF and GRT	256 including mgmt VRF and GRT
	VSP 8000 Series	256 including mgmt VRF and GRT	256 including mgmt VRF and GRT
Maximum number of SPB Layer 2 multicast UNI I-SIDs	VSP 4000 Series	See <a href="#">Number of I-SIDs supported</a> on page 47	See <a href="#">Number of I-SIDs supported</a> on page 47
	VSP 7200 Series	See <a href="#">Number of I-SIDs supported</a> on page 47	See <a href="#">Number of I-SIDs supported</a> on page 47
	VSP 8000 Series	See <a href="#">Number of I-SIDs supported</a> on page 47	See <a href="#">Number of I-SIDs supported</a> on page 47
Maximum number of SPB Layer 3 multicast UNI I-SIDs	VSP 4000 Series	Maximum 1,000 for a BEB: 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	Maximum 6,000 for a BEB: 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 8000 Series	Maximum 6,000 for a BEB: 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.	
Maximum number of FA ISID/VLAN assignments per port	VSP 4000 Series	94	94
	VSP 7200 Series	94	94
	VSP 8000 Series	94	94

Table continues...

Attribute	Product	vIST configuration	vIST not configured
Maximum number of IP multicast S,Gs when operating as a BCB	VSP 4000 Series	1,000	1,000
	VSP 7200 Series	16,000	16,000
	VSP 8000 Series	16,000	16,000

### 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 4000 Series	1,000	1,000
	VSP 7200 Series	4,000	4,000
	VSP 8000 Series	4,000	4,000
6	VSP 4000 Series	1,000	1,000
	VSP 7200 Series	3,500	4,000
	VSP 8000 Series	3,500	4,000
10	VSP 4000 Series	650	1,000
	VSP 7200 Series	2,900	4,000
	VSP 8000 Series	2,900	4,000
20	VSP 4000 Series	350	700
	VSP 7200 Series	2,000	4,000
	VSP 8000 Series	2,000	4,000
48	VSP 4000 Series	n/a	n/a
	VSP 7200 Series	1,000	2,000
	VSP 8000 Series	1,000	2,000
72	VSP 4000 Series	n/a	n/a
	VSP 7200 Series	750	1,500
	VSP 8000 Series	750	1,500
100	VSP 4000 Series	n/a	n/a
	VSP 7200 Series	550	1,100
	VSP 8000 Series	550	1,100
128	VSP 4000 Series	n/a	n/a
	VSP 7200 Series	450	900

*Table continues...*

Number of IS-IS interfaces (NNIs)	Product	I-SIDs with vIST configured on the platform	I-SIDs without vIST configured on the platform
	VSP 8000 Series	450	900
250	VSP 4000 Series	n/a	n/a
	VSP 7200 Series	240	480
	VSP 8000 Series	240	480

## 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 11-hellointerval` and `isis 11-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 7200 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 may 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 11-hellomultiplier`, instead of using the default value of 3.

### VSP 4000 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 11-hellomultiplier`, instead of using the default value of 3.

## 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 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 may 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 releases prior to 4.1.0.0 may 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 may 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.

## 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.

URPF mode	IPv6 mode	VSP 4000 Series			VSP 7200 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
Yes	Yes	n/a	n/a	n/a	3,488	1,744	1,000

### Important:

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).

## Filter Scaling

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

### Filter Scaling for the VSP 4000 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

### Filter Scaling for the VSP 7200 Series and VSP 8000 Series

The switch supports the following maximum limits:

- 256 ingress ACLs (see Note 1)
- 126 egress ACLs (see Note 2)
- 766 ingress ACEs (see Note 3)
- 252 egress ACEs (see Note 4)

*Note 1:* Regarding ingress ACLs (inPort or inVlan), the switch supports

- 256 ACLs with 1 security ACE each, or
- 128 ACLs with 1 QoS ACE each, or
- a combination based on this rule:

$$- ( (\text{num ACLs} + \text{num security ACEs}) \leq 512 ) \ \&\& \ ( (\text{num ACLs} + \text{num QoS ACEs}) \leq 256 )$$

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

*Note 2:* Regarding egress ACLs (outPort only), the switch supports

- 126 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.

*Note 3:* Theoretical maximum of 766 implies 1 ingress ACL with 511 security ACEs and 255 QoS ACEs

- Ingress ACEs supported:  $(512 (\text{security}) - \# \text{ of ACLs}) + (256 (\text{QoS}) - \# \text{ of ACLs})$ .

This maximum also implies a VLAN member count of 1 for an inVlan ACL.

*Note 4:* Theoretical maximum of 252 implies 1 egress ACL with 252 security ACEs

- Egress ACEs supported:  $253 - \# \text{ of ACLs}$ .

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

### Filter Scaling for VSP 8404C

The switch supports a maximum 3070 non-IPv6 ingress ACEs, 2047 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:

- 1024 non-IPv6 ingress ACLs (see Note 1)
- 1024 IPv6 ingress ACLs (see Note 2)
- 126 non-IPv6 egress ACLs (see Note 3)

*Note 1:* For 1024 non-IPv6 ingress ACLs (inPort, inVlan, or InVSN), the maximum is

- 1024 ACLs with 1 security ACE each OR
- a combination based on the following rule:
  - num of ACLs <= 1024 AND (num of ACLs + Security ACEs) <= 2048 AND (num of ACLs + QoS ACEs) <= 1024

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

*Note 2:* For 1024 IPv6 ingress ACLs (inPort), the maximum is

- 1024 IPv6 ACLs with 1 security ACE each OR
- a combination based on the following rule:
  - num of IPv6 ACLs <= 1024 AND (num of IPv6 ACLs + Security ACEs) <= 2048

*Note 3:* For 126 non-IPv6 egress ACLs (outPort), the maximum is

- 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:

- 3070 non-IPv6 ingress ACEs (see Note 4)
- 2047 IPv6 ingress ACEs (see Note 5)
- 251 non-IPv6 egress ACEs (see Note 6)

*Note 4:* For 3070 non-IPv6 ingress ACEs, the theoretical maximum implies the following configuration

- 1 non-IPv6 ingress ACL with 2047 security ACEs and 1023 QoS ACEs.
- a VLAN member count of 1 for inVlan ACLs
- Non-IPv6 Ingress ACEs supported:  $[2048(\text{security}) - (\text{num of ACLs})] + [1024(\text{QoS}) - (\text{num of ACLs})]$

*Note 5:* For 2047 IPv6 ingress ACEs, the theoretical maximum implies the following configuration

- 1 IPv6 ingress ACL with 2047 security ACEs
- IPv6 Ingress ACEs supported:  $[2048(\text{security}) - (\text{num of ACLs})]$

*Note 6:* For 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:  $252 - (\text{num egress ACLs})$

---

## 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.

# Chapter 6: Important Notices

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

---

## 100BASE-FX Support on VSP 4000 Series

VSP 4000 Series supports 100BASE-FX transceivers on the VSP 4450GSX or VSP 4850 models in SFP ports only. These models do not support 100BASE-FX in SFP+ ports.

---

## AES-GCM SSH Connection with Open SSH

Switch side encryption and authentication type must be set to the AES-GCM-128/256 methods and needs at least one hmac method in the authentication list in addition for the connection to work.

---

## Auto Negotiation Settings

VOSS 4.1 and later software requires the same auto negotiation settings on link partners to avoid incorrect declaration of link status. Mismatched settings can cause the links to stay down as well as unpredictable behavior. Ensure the auto negotiation settings between local ports and their remote link partners match before upgrading software to VOSS 4.1 or later.

---

## dos-chkdisk

If at the end of the `dos-chkdisk WORD<1-99>` command output you see the following choice:

- ```
1) Correct
2) Don't correct
```

Then, you should run the `dos-chkdisk WORD<1-99> repair` command.

## Fabric Attach Interoperability Notes

For Fabric Attach to operate between a VOSS platform and an ERS device, the ERS device must meet minimum software requirements. The following tables identify the minimum GA software releases required to build an FA solution.

**Table 13: Extending Fabric using Static FA Proxy Configuration (ISID/VLAN is Manually Configured on FA Proxy)**

| FA Server        |                 | FA Proxy |                 |
|------------------|-----------------|----------|-----------------|
| Product          | Minimum release | Product  | Minimum release |
| VSP 4000 Series  | 5.0.0.0         | ERS 5900 | 7.0.1           |
| VSP 7200 Series  |                 | ERS 5600 | 6.6.3           |
| VSP 8200VSP 8200 |                 | ERS 4800 | 5.9.2           |
| VSP 8400         |                 | ERS 4500 | 5.7.3           |

**Table 14: Extending Fabric to FA Clients by Using FA Proxy**

| FA Server                                                                                                                                                      |                 | FA Proxy |                 | FA Policy                   | FA Client |                 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|----------|-----------------|-----------------------------|-----------|-----------------|
| Product                                                                                                                                                        | Minimum release | Product  | Minimum release |                             | Product   | Minimum release |
| VSP 4000 Series                                                                                                                                                | 5.0.0.0         | ERS 5900 | 7.0.1           | IDE Release 9.1* (See Note) | AP9100    | 7.2.5           |
| VSP 7200 Series                                                                                                                                                |                 | ERS 5600 | 6.6.3           |                             |           |                 |
| VSP 8200VSP 8200                                                                                                                                               |                 | ERS 4800 | 5.9.2           |                             |           |                 |
| VSP 8400                                                                                                                                                       |                 | ERS 4500 | 5.7.3           |                             |           |                 |
| <p><b>* Note:</b><br/>                     * Required for AP9100 FA Client. IDE sends FA ISID/VLAN assignment request by using FA Proxy to VOSS FA Server.</p> |                 |          |                 |                             |           |                 |

## IKEv2 Digital Certificate Support with Strong Swan

Strong Swan server must be customized to get IKEv2 Digital Certificate connection between switch and server for RFCs that Strong Swan is compliant and switch is not. This includes SHA256 signing check, IPv6 identifier check and others.

---

## Feature Licensing

The VSP 4000 Series, VSP 7200 Series, VSP 8200, and VSP 8400 support a licensing model that includes Base and Premier licenses. The Base License, which is included with the purchase of the switch, enables the basic networking capabilities of the device. You can purchase Premier Licenses separately to enable advanced features on the switch.

Premier Licenses enable advanced features not available in the Base License. The following table provides information on the Premier Licenses that the switch supports.

| License type                | Supported features                                                                                                                                                                                                 |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Premier License             | <ul style="list-style-type: none"> <li>• Fabric Connect Layer 3 Virtual Services Networks (VSNs)</li> <li>• DvR</li> <li>• VXLAN Gateway</li> <li>• Greater than 24 VRFs</li> </ul>                                |
| Premier with MACsec License | <ul style="list-style-type: none"> <li>• Fabric Connect Layer 3 Virtual Services Networks (VSNs)</li> <li>• DvR</li> <li>• VXLAN Gateway</li> <li>• Greater than 24 VRFs</li> <li>• IEEE 802.1AE MACsec</li> </ul> |

For information about licensing including how to load a license file, see *Administering*.

---

## show vlan remote-mac-table Command Output

The output for the `show vlan remote-mac-table` command can be different than what appears for the same command on VSP 9000.

Because all MinM packets that originate from the IST switch use the virtual B-MAC as the source B-MAC, the remote BEB learns the C-MAC against the virtual B-MAC. Because the remote BEB uses the shortest path to the virtual B-MAC, the remote BEB can show the IST peer as a tunnel in the `show vlan remote-mac-table` command output.

---

## Supported Browsers

Use the following recommended browser versions to access Enterprise Device Manager (EDM):

- Microsoft Edge 38.14393
- Microsoft Internet Explorer 11
- Mozilla Firefox 50+

**\* Note:**

The following earlier browser versions can be used to access EDM (although not recommended):

- Microsoft Internet Explorer 9 and 10
- Mozilla Firefox 37 through 49

---

## System Name Prompt vs. IS-IS Host Name

Beginning with VOSS 6.1.2, the software no longer allows spaces in the system name prompt, but it still allows spaces in the IS-IS host name. When you upgrade, the software replaces spaces in the system name with underscores while leaving the IS-IS host name unchanged.

---

## VOSS Feature Differences

Extreme Networks has implemented feature parity between the VOSS platforms in all but a few exceptions. Some features are supported on one platform and not another to maintain compatibility with previous releases. In other cases, the difference is between of the role of the switch in the network.

The following table summarizes the feature differences between the platforms in this release.

| Feature                         | VSP 4000 Series | VSP 7200 Series | VSP 8000 Series |
|---------------------------------|-----------------|-----------------|-----------------|
| CFM CMAC for the CVLAN          | Supported       | Not supported   | Not supported   |
| Channelization of 40 Gbps ports | Not applicable  | Supported       | Supported       |
| DvR Controller                  | Not supported   | Supported       | Supported       |

*Table continues...*



| Feature                                                                   | VSP 4000 Series                                       | VSP 7200 Series                                                                                                                                                                                                 | VSP 8000 Series                                                                                                                                                                                                 |
|---------------------------------------------------------------------------|-------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Dynamic Nickname Assignment                                               | Not supported on VSP 4850                             | Supported                                                                                                                                                                                                       | Supported                                                                                                                                                                                                       |
| Energy Saver                                                              | Supported                                             | VSP 7254XTQ only                                                                                                                                                                                                | VSP 8400 ESMs with copper interfaces only                                                                                                                                                                       |
| Fabric RSPAN                                                              | Flow-based Mirroring into single ISID only            | Supported                                                                                                                                                                                                       | Supported                                                                                                                                                                                                       |
| FDB protected by port (MAC security limit-learning)                       | Supported                                             | Not supported                                                                                                                                                                                                   | Not supported                                                                                                                                                                                                   |
| Ingress Dual Rate Port Policers                                           | Supported                                             | Not supported                                                                                                                                                                                                   | Not supported                                                                                                                                                                                                   |
| Layer 2 Video Surveillance install script                                 | Supported                                             | Supported                                                                                                                                                                                                       | Not applicable                                                                                                                                                                                                  |
| Layer 3 Video Surveillance install script (formerly called Endura script) | Supported                                             | Not applicable                                                                                                                                                                                                  | Not applicable                                                                                                                                                                                                  |
| Linux kernel version 4.9                                                  | Not supported on VSP 4850                             | Supported                                                                                                                                                                                                       | Supported                                                                                                                                                                                                       |
| Multicast Route Statistics for IPv4 and IPv6                              | Not supported                                         | Supported                                                                                                                                                                                                       | Supported                                                                                                                                                                                                       |
| NLB Unicast and Multicast                                                 | Not supported                                         | Supported                                                                                                                                                                                                       | Supported                                                                                                                                                                                                       |
| PoE/PoE+ Allocation Using LLDP                                            | Supported on VSP 4850GTS-PWR+ and VSP 4450GTX-HT-PWR+ | Not supported                                                                                                                                                                                                   | Not supported                                                                                                                                                                                                   |
| Port licensing                                                            | Not supported                                         | Applies to Port licensed VSP 7254XSQ fiber switch and VSP 7254XTQ copper switch                                                                                                                                 | Not supported                                                                                                                                                                                                   |
| QoS                                                                       | Supported                                             | Supported with exceptions: <ul style="list-style-type: none"> <li>• Classification does not have routed packet classification</li> <li>• No ingress policer- Uses ingress port rate limiting instead</li> </ul> | Supported with exceptions: <ul style="list-style-type: none"> <li>• Classification does not have routed packet classification</li> <li>• No ingress policer- Uses ingress port rate limiting instead</li> </ul> |
| sFlow                                                                     | Reduced sampling rate                                 | Supported                                                                                                                                                                                                       | Supported                                                                                                                                                                                                       |
| Software licensing (Premier)                                              | Supports licenses generated from the                  | Supports licenses generated from the                                                                                                                                                                            | Supports licenses generated from the                                                                                                                                                                            |

*Table continues...*

| Feature                                          | VSP 4000 Series                                                                                                             | VSP 7200 Series                                                                               | VSP 8000 Series                                                                               |
|--------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
|                                                  | Avaya Data Licensing Portal and the Product Licensing & Delivery System (PLDS)<br>Supports licenses with Extreme signatures | Avaya Product Licensing & Delivery System (PLDS)<br>Supports licenses with Extreme signatures | Avaya Product Licensing & Delivery System (PLDS)<br>Supports licenses with Extreme signatures |
| SPM-PIM GW Controller                            | Not supported on VSP 4850                                                                                                   | Supported                                                                                     | Supported                                                                                     |
| Use of Open Networking Adapter for Fabric Extend | Required                                                                                                                    | Not required                                                                                  | Not required                                                                                  |
| VXLAN Gateway                                    | Not supported                                                                                                               | Supported                                                                                     | Supported                                                                                     |
| Zero Touch Fabric configuration                  | Not supported on VSP 4850                                                                                                   | Supported                                                                                     | Supported                                                                                     |

---

## VSP 4000 Series Connecting to an ERS 8800 Interoperability Notes

- For customers running ERS 8800 version 7.1.x:
  - The minimum software release is 7.1.3.1, however the recommended ERS 8800 software release is 7.1.5.4 or later.
  - On switches using 8612 XLRS or 8812XL modules for the links connecting to the VSP 4000, the minimum software version is 7.1.5.4.
  - The “spbm version” on the ERS 8800 must be “802.1aq”.
- For customers running ERS 8800 version 7.2.x:
  - The minimum software release is 7.2.0.2, however the recommended ERS 8800 software release is 7.2.1.1 or later.
  - On switches using 8612 XLRS or 8812XL modules for the links connecting to the VSP 4000 Series switch, the minimum software version is 7.2.1.1.
- Diffserv is enabled in the VSP 4000 Series port settings, and is disabled in the ERS 8800 port settings, by default.

---

## VSP 4000 Series Notes on Combination Ports

When the VSP 4000 Series is reset, the peer connections for all ports, including combination ports 47 and 48 on VSP 4450GTX-HT-PWR+, will transition down. During the reset, the fiber ports remain down, but only the copper ports 47 and 48 come up periodically throughout the reset. The copper

ports 47 and 48 come up approximately 15 seconds into the reset, remain up for approximately 60 seconds, and then transition down until the boot sequence is complete and all ports come back up.

The following is an example of the status of the combination ports during reset.

```
CP1 [03/18/70 09:55:35.890] 0x0000c5e7 00300001.238 DYNAMIC SET GlobalRouter HW INFO Link
Down(1/47)
CP1 [03/18/70 09:55:35.903] 0x0000c5e7 00300001.239 DYNAMIC SET GlobalRouter HW INFO Link
Down(1/48)
CP1 [03/18/70 09:55:49.994] 0x0000c5ec 00300001.239 DYNAMIC CLEAR GlobalRouter HW INFO
Link Up(1/48)
CP1 [03/18/70 09:55:50.322] 0x0000c5ec 00300001.238 DYNAMIC CLEAR GlobalRouter HW INFO
Link Up(1/47)
CP1 [03/18/70 09:56:43.131] 0x0000c5e7 00300001.238 DYNAMIC SET GlobalRouter HW INFO Link
Down(1/47)
CP1 [03/18/70 09:56:43.248] 0x0000c5e7 00300001.239 DYNAMIC SET GlobalRouter HW INFO Link
Down(1/48)
```

### Cabled Connections for Both Copper and Fiber Ports

The following limitations apply when the combination ports have cabled connections for both the copper and fiber ports.

Do not use the fiber port and do not insert an SFP into the optical module slot in the following situations:

- a copper speed setting of either 10M or 100M is required
- a copper duplex setting of half-duplex is required

#### **Note:**

These limitations apply only when auto-negotiation is disabled. To avoid this limitation, use auto-negotiation to determine the speed to 10/100/1000 and to determine the duplex.

The 100M-FX SFP requires auto-negotiation to be disabled. Therefore, auto-negotiation will also be disabled for the copper port. Configure the peer switch to disable auto-negotiation.

# Chapter 7: 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 VOSS 7.0

| 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. |
| -            | VRF provisioning is restricted to 127 VRFs on VSP 4000 Series.                                                                    | None.                                                                                                                                                                                                                                                                                                                                                                           |
| 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 may see failures of up to 8%.                                                                                                                                                                                        |
| VOSS-1279    | The command <code>sys shutdown</code> does not change the STATUS LED.                                                             | None. This issue does not impact any functionality.                                                                                                                                                                                                                                                                                                                             |
| VOSS-1280    | The following error message occurs when performing shutdown/no-shutdown                                                           | None. When this issue occurs, the port in question can go down, then performs a                                                                                                                                                                                                                                                                                                 |

*Table continues...*

| Issue number | Description                                                                                                                                                                                                                                                                                                                                                                                                                                      | Workaround                                                                                                                                                                                                                                                                 |
|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|              | 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                                                                                                                                                                                                                                                                        | shutdown/no-shutdown of the port to bring it up and resumes operation.                                                                                                                                                                                                     |
| VOSS-1284    | On a fresh boot, peer ports connected to ports 1/49 and 1/50 bounce and can cause additional transitions in the network.                                                                                                                                                                                                                                                                                                                         | None.                                                                                                                                                                                                                                                                      |
| 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-1287    | A reboot with verbose configuration does not allow you to delete a VRF.                                                                                                                                                                                                                                                                                                                                                                          | This issue occurs only if you save the configuration file in verbose mode and reboot the switch in that configuration. This situation is unlikely to exist; verbose mode is used more as a diagnostic tool. This issue does not impact functionality.                      |
| VOSS-1288    | Shutting down the T1 link from one end of the link does not shut down the link at the remote end. You may 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 <b>ping</b> or <b>traceroute</b> commands for IPv6 addresses.                                                                                                                                                                                                                                                                                                                                                        | Use CLI to initiate <b>ping</b> and <b>traceroute</b> commands.                                                                                                                                                                                                            |
| VOSS-1310    | You cannot use EDM to issue <b>ping</b> or <b>traceroute</b> commands for IPv4 addresses.                                                                                                                                                                                                                                                                                                                                                        | Use CLI to initiate <b>ping</b> and <b>traceroute</b> commands.                                                                                                                                                                                                            |
| VOSS-1312    | On the 40-gigabit ports, the small metallic fingers that surround the ports are fragile and can bend out of shape during removal                                                                                                                                                                                                                                                                                                                 | Insert the QSFP+ carefully. If the port gets damaged, it needs to be repaired.                                                                                                                                                                                             |

*Table continues...*

| Issue number | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Workaround                                                                                                                                                  |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
|              | and insertion of the transceivers. When the fingers are bent, they prevent the insertion of the QSFP+ transceiver.                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                             |
| VOSS-1335    | <p>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:</p> <ul style="list-style-type: none"> <li>• The multicast traffic does not flow.</li> <li>• The sender entries are not learned on the local sender switch.</li> <li>• The Indiscard packet count gets incremented on the <code>show int gig error</code> statistics command.</li> </ul> | Use a v3 interface as querier in a LAN segment that has snoop-enabled v2 and v3 interfaces.                                                                 |
| VOSS-1340    | From EDM, you cannot perform a Layer 2 IP ping for an IPv6 address. EDM displays the following error: <code>No next Hop address found for ip address provided</code>                                                                                                                                                                                                                                                                                           | Use the CLI to perform a Layer 2 IP ping.                                                                                                                   |
| 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-1348    | In the COM EDM Plugin command, the Layer 2 Traceroute IPv6 does not work properly and displays the error: <code>No Such Name</code> .                                                                                                                                                                                                                                                                                                                          | Use the CLI to initiate the Layer 2 Traceroute for IPv6.                                                                                                    |
| 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 shutdown the port.                                                                                                                                                                                | Administratively shutdown, and then reenables the port. Use auto-negotiation. Disabling auto-negotiation on these ports is not a recommended configuration. |

*Table continues...*

| Issue number | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Workaround                                                                                                                                                                                                                                                                                                                                            |
|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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.                                                                                                                                                                                                                                                               |
| VOSS-1360    | <p>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 following system output message appears: 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:</p> <p>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 may need to meet. The actual minimum password requirements you need to meet are configured on your system by the administrator.</p> | None.                                                                                                                                                                                                                                                                                                                                                 |
| VOSS-1367    | The router ospf entry always appears in the configuration file 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 login 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.                                                                                                                                                                                                                                                                              |

*Table continues...*

Known Issues and Restrictions

| Issue number | Description                                                                                                                                                                                                                                                                                                                                                                                         | Workaround                                                        |
|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 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 <code>COP-SW ERROR</code> and <code>RCIP6 ERROR</code> 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-1402    | You cannot use EDM to configure SSH rekey, or to enable or disable SFTP.                                                                                                                                                                                                                                                                                                                            | Use CLI to configure SSH rekey, and to enable or disable SFTP.    |
| VOSS-1403    | EDM displays the user name as Admin, even though you login using a different user name.                                                                                                                                                                                                                                                                                                             | None.                                                             |
| VOSS-1404    | You cannot use EDM to view the IPv6 DHCP relay counters.                                                                                                                                                                                                                                                                                                                                            | Use CLI to view the IPv6 DHCP relay counters.                     |
| 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 RAIUS-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-1431    | When IS-IS is disabled on one of the vIST peer nodes with RSMLT interfaces and it has ECMP routes with the RSMLT peer as the next hop, the ECMP routes that are being replaced during the transition of the IS-IS state now will have a next hop of the local interface. This results in an error message <code>COP-SW ERROR</code><br><code>ercdProcIpRecMsg: Failed to Replace IP Records.</code> | Enable IS-IS on both vIST peers.                                  |

*Table continues...*



| Issue number                        | Description                                                                                                                                                                                                                                                          | Workaround                                                                                                                                                                                              |
|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| VOSS-1433                           | When you manually enable or disable IS-IS on 40 Gbps ports with CR4 direct attach cables (DAC), the port bounces once.                                                                                                                                               | 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<br>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: <code>Only 24 Layer 3 VSNs can be configured.</code>                             | None.                                                                                                                                                                                                   |
| VOSS-1459<br>VOSS-1463<br>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 may not 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-1470                           | You cannot use EDM to enable or disable ASG. You can only view ASG status.                                                                                                                                                                                           | Use the CLI to enable or disable ASG.                                                                                                                                                                   |
| 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-1560                           | If you apply an ipv6-out-route-map on a BGP peer to filter a particular IPv6 prefix range with a match network condition, it does not filter the full prefix range.                                                                                                  | Configure the incoming policy to filter incoming advertised routes on BGP+ peers.                                                                                                                       |
| VOSS-1584                           | The <code>show debug-file all</code> command is missing.                                                                                                                                                                                                             | None.                                                                                                                                                                                                   |
| VOSS-1585                           | The system does not generate a log message, either in the log file or on screen, when you run the <code>flight-recorder</code> command.                                                                                                                              | None.                                                                                                                                                                                                   |

*Table continues...*

| Issue number | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Workaround                     |
|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| VOSS-1608    | If you use an ERS 4850 FA Proxy with a VOSS FA Server, a mismatch can exist in the show output for tagged management traffic. The ERS device always sends traffic as tagged. The VOSS FA Server can send both tagged and untagged. For untagged, the VOSS FA Server sends 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.                          |
| VOSS-2033    | <p>The following error messages appear when you use the <b>shutdown</b> and <b>no shutdown</b> commands on the MLT interface with ECMP and BGP+ enabled:</p> <pre> 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                     </pre> | Disable the alternate path.    |

*Table continues...*

| Issue number | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Workaround                                                                                                                                                                                                                                                 |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| VOSS-2036    | IPsec statistics for the management interface do not increment for <code>inESPFailures</code> or <code>InAHFailures</code> .                                                                                                                                                                                                                                                                                                                                                                                                                                  | 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 <code>show eapol port interface</code> to see port status.                                                                                                    |
| VOSS-2207    | You cannot configure an SMTP server hostname that begins with a digit. The system displays the following error:<br><code>Error: Invalid IP Address or Hostname for SMTP server</code>                                                                                                                                                                                                                                                                                                                                                                         | None.                                                                                                                                                                                                                                                      |
| VOSS-2208    | While performing CFM Layer 2 traceroute between two BEBs via a transit BCB, the transit BCB hop is not seen, if the transit BCB has ISIS adjacencies over FE I3core 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 <code>trace level1</code> , and then press <code>Enter</code> .                                                                                                                                                    |
| VOSS-2270    | The packet internal CoS is derived incorrectly for packets sourced from a brouter port when the CoS should be derived from the port level QoS. The following list identifies scenarios that derive the internal CoS from the port QoS: <ul style="list-style-type: none"> <li>• Untagged non-IP packet</li> <li>• Untagged IP packet, and the source port is Layer 3 untrusted</li> <li>• Tagged non-IP packet and the source port is Layer 2 untrusted</li> <li>• Tagged IP packet and the source port is Layer 3 untrusted and Layer 2 untrusted</li> </ul> | Use the port default QoS configuration for the brouter port. The port default configuration is Layer 2 trusted and Layer 3 trusted, and under this configuration, only the first scenario in the list is still an issue. The other scenarios do not occur. |

*Table continues...*

| Issue number | Description                                                                                                                                                                                                                                                | Workaround                                                                                                                                                         |
|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| VOSS-2279    | When an IPv6 neighbor device boots, the following error message occurs in the peer device console: GlobalRouter COP-SW ERROR ercdProcIpv6RouteMsg: Failed to Delete IPV6 Record - Ip: fe80:0:0:8dc:b2ad:aaff:fe55:1b91, NextHop:0:0:0:0:0:0:0:0, mask: 128 | There is no functional impact. Port <b>shutdown</b> and <b>no shutdown</b> commands, which recovers the traffic, works even when the switch is in an error state.  |
| VOSS-2285    | When on BEB, continuously pinging IPv6 neighbor address using CLI command <b>ping -s</b> , 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 via Layer 2 core.                                                                                                                                                                    | None.                                                                                                                                                              |
| VOSS-2397    | If you configure a channelized port in EDM by using the <b>Configuration &gt; Edit &gt; Port &gt; General</b> or <b>Configuration &gt; Edit &gt; Port &gt; IP or IPv6</b> navigation paths, you can only see and configure the first sub-port.             | In the Device Physical View, right-click the port and use the <b>General &gt; IP</b> or <b>General &gt; IPv6</b> sub-menu to configure all sub-ports.              |
| VOSS-2411    | On a VSP 4450GSX-DC, the https-port info is not displayed or saved into the configuration.                                                                                                                                                                 | None.                                                                                                                                                              |
| VOSS-2415    | There is no option in the Insert V3 Interface screen of EDM to insert a VRRPv3 interface for IPv6. The two check boxes in the screen are disabled.                                                                                                         | There is no functional impact. EDM has two menus of IP and IPv6 and this functionality is available there along with other features.                               |
| 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-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. |

*Table continues...*

| Issue number             | Description                                                                                                                                                                                                                                                                                                                                                                                    | Workaround                                                                                                                                                                                                           |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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.                                                                                                                                                                                                                |
| VOSS-4728                | If you remove and recreate an IS-IS instance on an NNI port with autonegotiation 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.<br><br>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 autonegotiation 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 <b>show fulltech</b> command in an SSH session, do not disable SSH on the system. Doing so can block the SSH session.                                                                                                                                                                                                                                                           | None.                                                                                                                                                                                                                |
| VOSS-4912                | The VSP 4000 Series does not advertise an LLDP Management TLV.                                                                                                                                                                                                                                                                                                                                 | None.                                                                                                                                                                                                                |
| VOSS-5130                | Disabling and immediately enabling IS-IS results in the following log message:<br>PLSBFIB ERROR: /vob/cb/<br>nd_protocols/plsb/lib/<br>plsbFib.cpp(line 1558)<br>unregisterLocalInfo() local<br>entry does not exist.<br>key(0xfda010000fffa40)                                                                                                                                                | There is no functional impact. Ignore the error message.                                                                                                                                                             |
| VOSS-5159 &<br>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.                                                                                                                                          |

*Table continues...*

Known Issues and Restrictions

| Issue number | Description                                                                                                                                                                                                                                                                                                      | Workaround                                                                                                                                                                                                                                                                                                                                                                                                                                |
|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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-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 may 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.                                                                                                                                                                                                                                                                                                                                                    |
| 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-5982    | When using Microsoft Edge to login to EDM, the first attempt fails if you use http.                                                                                                                                                                                                                              | Use https, another browser (Firefox or Internet Explorer), or login a second time.                                                                                                                                                                                                                                                                                                                                                        |
| 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 VOSS 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                                                                                                                                                                                      | Configure a default route if possible.                                                                                                                                                                                                                                                                                                                                                                                                    |

*Table continues...*

| Issue number | Description                                                                                                                                                                                                                                                                                                               | Workaround                                                                                                                 |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|
|              | or a VLAN common to ingress VLAN of the filtered packet is not present.                                                                                                                                                                                                                                                   |                                                                                                                            |
| VOSS-6959    | On VSP 4000 Series platforms, if you configure an ACL with default-action deny and control-packet-action deny, it causes all packets to be dropped including packets matching ACEs with permit action.                                                                                                                    | Do not configure the ACL control-packet-action deny option on VSP 4000 Series platforms.                                   |
| VOSS-7006    | SMLT MACs are not synced correctly when you create a new VLAN on one of the vIST peers.                                                                                                                                                                                                                                   | After you create a VLAN, enter the following command: <b>vlan mac-address-entry &lt;vlan id&gt; re-sync</b>                |
| VOSS-7058    | Redirect to the next-hop ACL takes longer than expected to become active after a link down/link up scenario.                                                                                                                                                                                                              | Configure a dummy static route pointing to the next-hop.                                                                   |
| 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-7443    | You may detect MHMV ports in the NULL VLAN.                                                                                                                                                                                                                                                                               | Manually change the VLAN membership.                                                                                       |
| VOSS-7457    | The switch can experience an intermittent traffic loss after you disable a Fabric Extend tunnel.                                                                                                                                                                                                                          | Bounce the tunnel between the devices.                                                                                     |
| VOSS-7471    | EDM does not provide a menu for valid TCP flag options when configuring an ACL/ACE filter. You cannot see what flags are supported for eq and mask.                                                                                                                                                                       | Use CLI, which shows the valid TCP flag options.                                                                           |
| 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 4000 Series CLI Help text shows an incorrect port for <b>boot config flags linerate-directed-broadcast</b> . The Help text shows 1/48. The correct port is 1/46.                                                                                                                                                  | None                                                                                                                       |
| VOSS-7504    | A port is not removed from a RADIUS assigned VLAN (RAV) when you disable EAP (RAV and egress attribute are returned by the RADIUS server). VLAN membership is not restored but traffic is still blocked for unauthenticated clients so there is no functional impact. This issue is observed when both the RAV and egress | <ol style="list-style-type: none"> <li>1. Disable EAP.</li> <li>2. Add the port to the RAV, and then remove it.</li> </ol> |

*Table continues...*

Known Issues and Restrictions

| Issue number | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Workaround                                                                                                                                                                   |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|              | VLAN attributes are received with the same value from the RADIUS server.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                              |
| VOSS-7528    | If user changes spbm ethertype to 0x88A8 instead of the default value of 0x8100, B-VLAN TPID remains still 0x8100 over FE tunnels.                                                                                                                                                                                                                                                                                                                                                                                                                                         | None. Keep spbm ethertype with default value.                                                                                                                                |
| 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-7916    | Redistribution of <i>direct</i> interfaces between VRFs causes replication of ARP entries in the hardware tables for each of the redistributed VRFs. Care should be taken when planning the redistribution of directs between VRFs to ensure ARP counts remain within the scaling limits of the platform. If platform scaling limits are exceeded the following message will be observed: IO1 [09/17/17 20:41:01.049:EDT] 0x00140592 00000000 GlobalRouter COP-SW ERROR ercdUpdateArpAcrossVrf: Failed to add IPv4 Host in BCM for 10.1.4.39 vrf=15: reason=-6(Table full) | To avoid this situation, design consideration should be taken to plan for direct route redistribution between VRFs only where needed to reduce unnecessary extra ARP copies. |
| 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-8560    | Inband brouter RADIUS server - first RADIUS reachability request is not sent immediately after reboot.                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | None.                                                                                                                                                                        |
| VOSS-8876    | On bootup COP-SW ERROR<br>lcdPimPortToMac: invalid<br>PIM_PORT[255] is sometimes observed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | This message can be safely ignored and will not impact the system. The message will be removed in a future release.                                                          |
| VOSS-9088    | If you unplug the power cord and then reconnect the power cord within 1 second, the switch generates a core file and reboots after 5 minutes.                                                                                                                                                                                                                                                                                                                                                                                                                              | None.                                                                                                                                                                        |
| VOSS-9206    | Interface statistics InDiscard counter in <b>show interfaces gigabitEthernet error</b> output does not increment consistently when IPv6 packets are dropped when uRPF checks fail.                                                                                                                                                                                                                                                                                                                                                                                         | None.                                                                                                                                                                        |

Table continues...



| Issue number | Description                                                                                                                                                                                                                                                                                                                                                                                             | Workaround                                                                        |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
|              | This issue applies only to VSP 4000 Series.                                                                                                                                                                                                                                                                                                                                                             |                                                                                   |
| VOSS-9516    | When you connect to EDM using HTTPS, you can see multiple SSL negotiation with client successful messages during your EDM session. This message appears each time a successful SSL_Handshake occurs between the web browser and the web server. The log file may not 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-9589    | Dynamic Nickname Assignment is not supported over Fabric Extend tunnels.                                                                                                                                                                                                                                                                                                                                | None.                                                                             |
| VOSS-9621    | For VOSS 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-9670    | When rebooting the chassis, the following message can appear: 1<br>2018-03-05T11:16:36.168-05:00<br>AVL-156 CP1 - 0x002bc608 -<br>00000000 GlobalRouter VSPTALK<br>WARNING cppTap unexpected IO<br>error fd 137 errno 100.                                                                                                                                                                              | None. VSP Talk is not a supported VOSS feature.                                   |
| VOSS-9860    | The EDM navigation path to find the <b>Storage Usage</b> and <b>Flash Files</b> tabs is different on VSP 4000 Series switches than on other VOSS switches.                                                                                                                                                                                                                                              | Use the <b>Edit &gt; File System</b> navigation path on VSP 4000 Series switches. |
| VOSS-9872    | The <b>Edit &gt; Chassis &gt; Power Consumption</b> tab does not appear on VSP 4000 Series.                                                                                                                                                                                                                                                                                                             | Use CLI.                                                                          |
| VOSS-9917    | The log message <code>INFO Switch Externally Rebooted with CoreDump</code> does not consistently appear on the console port before reboot when you select the <b>softResetCoreDump</b> option from EDM.                                                                                                                                                                                                 | None.                                                                             |
| VOSS-9918    | EDM does not display a value for <b>OperSpeed</b> if you right-click on the Management port for a VOSS device with an out-of-band management port, and then select <b>Edit &gt; General</b> .                                                                                                                                                                                                           | Use CLI.                                                                          |

*Table continues...*

| Issue number | Description                                                                                                                                                                                                                                                                                                                                                                                                                                       | Workaround                                                                                                                                      |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| VOSS-9919    | EDM incorrectly provides the <b>Configuration &gt; IP &gt; IS-IS</b> tabs in the Mgmt VRF context view.                                                                                                                                                                                                                                                                                                                                           | Routing is not supported on out of band management ports.                                                                                       |
| VOSS-9920    | If you use EDM to edit a single port that has MACsec enabled, the display indicates MACsec is not enabled.                                                                                                                                                                                                                                                                                                                                        | Use CLI to confirm that MACsec is enabled on the port.                                                                                          |
| VOSS-9922    | In EDM, when you enable IS-IS on a non-channelized 40 Gbps port, EDM displays the following message: <code>ISIS configurations are not allowed on EAPoL enabled ports. even if EAPoL is not enabled.</code>                                                                                                                                                                                                                                       | Use CLI.                                                                                                                                        |
| VOSS-9923    | When adding IS-IS to a non-channelized interface the port options for channelized ports are visible in EDM. These fields should appear dim.                                                                                                                                                                                                                                                                                                       | None. This is a display issue in EDM.                                                                                                           |
| VOSS-9943    | The system displays the unnecessary error message <code>Error: FHS supported only on IPv6 interfaces associated with GlobalRouter.</code> when you clear FHS statistics using the <code>clear ipv6 fhs statistics all</code> command without an FHS configuration.                                                                                                                                                                                | No functional impact.<br><br>Use the <code>clear ipv6 fhs statistics all slot/port</code> command, where slot/port is the list of ports in GRT. |
| VOSS-9954    | The <b>Interface Counters</b> tab in EDM displays <code>(0 in Vlan_If NaN)</code> for port description in the Index column under <b>Configuration &gt; IS-IS &gt; Stats</b> for VSP 7200 and VSP 8400 platforms.                                                                                                                                                                                                                                  | None.                                                                                                                                           |
| wi01208650   | The console gets disconnected frequently when you enable screen trace. The error displayed is <code>Forced log-out after 65535 secs.</code>                                                                                                                                                                                                                                                                                                       | None.                                                                                                                                           |
| wi01217871   | If you attach the QSFP+ end of a passive breakout cable to a VSP 4000 Series , VSP 7200 Series, or VSP 8000 Series switch, and the SFP+ ends of the cable to a VSP 9000 running Release 4.0.1, the output for the <code>show pluggable-optical-modules basic</code> command on the VSP 9000 shows an incorrect vendor name and part number. The incorrect information also appears in EDM under the <b>Edit &gt; Port &gt; General</b> menu path. | None.                                                                                                                                           |

## Restrictions and Expected Behaviors

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

### General Restrictions and Expected Behaviors

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

| Issue number | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                | Workaround                                                                                                                                                                                                                                                           |
|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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.<br><br>EDM displays path attributes as received and stored in the BGP subsystem. If the attribute is from an eBGP peer, the local preference appears as zero.<br><br>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 <b>Enter</b> . This will return you to the EDM home page. |
| VOSS-2166    | The IPsec security association (SA) configuration has a NULL Encryption option under the <b>Encrpt-algo</b> parameter. Currently, you must fill the <b>encrptKey</b> and <b>keyLength</b> 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.                                                                                                                              |

*Table continues...*

| Issue number | Description                                                                                                                                                                                                                                                                                                                              | Workaround                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| VOSS-2185    | <p>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.</p>                                                                                                                                                    | <p>As a workaround, perform one of the following tasks:</p> <ul style="list-style-type: none"> <li>• Clear the non-EAP session on the port that the client is first authenticated on, before you move the client to another port.</li> <li>• 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 <code>vlan create &lt;2-4059&gt; type port-mstprstp &lt;0-63&gt;</code>. Ensure that the new port is a member of this VLAN.</li> </ul> |
| VOSS-7640    | <p>The same route is learned via multiple IPv6 routing protocols (a combination of two of the following : RIPng, OSPFv3 and BGPv6).</p> <p>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).</p> | None.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| VOSS-7647    | With peer group configuration, you cannot configure Update Source interface with IPv6 loopback address in EDM.                                                                                                                                                                                                                           | Use CLI.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| wi01068569   | <p>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: <code>Switch:1(config)#isis apply redistribute direct vrf 2</code></p>                 | 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                                                                                                                                                 | n/a                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

*Table continues...*

| Issue number | Description                                                                                                                                                                                                                                                                                                                                                        | Workaround                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|              | entries for that VRF are created and maintained in a separate text file, <code>snmp_comm.txt</code> , 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 may still see SNMP community entries for VRFs other than the <code>globalRouter vrf0</code> . |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| wi01138851   | Configuring licenses using EDM is not supported.                                                                                                                                                                                                                                                                                                                   | 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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 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 <code>show ip igmp sender</code> command is not updated with new sender port information.                                                                    | <p>You can perform one of the following workarounds:</p> <ul style="list-style-type: none"> <li>On an IGMP snoop-enabled interface, you can flush IGMP sender records.</li> </ul> <p><b>⚠ Caution:</b><br/>Flushing sender records can cause a transient traffic loss.</p> <ul style="list-style-type: none"> <li>On an IGMP-enabled Layer 3 interface, you can toggle the IGMP state.</li> </ul> <p><b>⚠ Caution:</b><br/>Expect traffic loss until IGMP records are built after toggling the IGMP state.</p> |
| wi01145099   | IP multicast packets with a time-to-live (TTL) equal to 1 are not switched across the SPB cloud over a Layer 2                                                                                                                                                                                                                                                     | To prevent IP multicast packets from being dropped, configure multicast                                                                                                                                                                                                                                                                                                                                                                                                                                        |

*Table continues...*

Known Issues and Restrictions

| Issue number | Description                                                                                                                                                                                                                                                                                                                                                                                      | Workaround                                                                                                                      |
|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
|              | VSN. They are dropped by the ingress BEB.                                                                                                                                                                                                                                                                                                                                                        | sends 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   | <p>A loss of learned MAC addresses occurs in a vIST setup beyond 10k addresses.</p> <p>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.</p> | None.                                                                                                                           |
| wi01210217   | The command <code>show eapol auth-stats</code> displays <code>LAST-SRC-MAC</code> 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. |
| wi01212034   | <p>When you disable EAPoL globally:</p> <ul style="list-style-type: none"> <li>• Traffic is allowed for static MAC configured on EAPoL enabled port without authentication.</li> <li>• Static MAC config added for authenticated NEAP client is lost.</li> </ul>                                                                                                                                 | 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.                                                                                               |

*Table continues...*

| Issue number             | Description                                                                                                                                                                                                                                                                                                                                                                                                | Workaround                                                                                                                                                                                        |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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<br>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 <code>show khi port-statistics</code> 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 work arounds: <ul style="list-style-type: none"> <li>• Enable PIM on the edge.</li> <li>• Ensure that IST peers are either RP or DR but not both.</li> </ul> |
| wi01224683<br>wi01224689 | Additional link bounce may occur on 10 Gbps ports when toggling links or during cable re-insertion.<br><br>Additional link bounce may 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.                                                                                                                                                                                             |

*Table continues...*

| Issue number | Description                                                                                                                                                                                                                                                                                                                                                                                                                   | Workaround |
|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| 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 <code>ssh</code> command. | None.      |
| wi01234289   | HTTP management of the ONA is not supported when it is deployed with a VSP 4000 Series device.                                                                                                                                                                                                                                                                                                                                | None.      |

### 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.

| 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: <ul style="list-style-type: none"> <li>• 400W — with 1 operational power supply</li> <li>• 832W — with 2 operational power supplies</li> </ul> |
| 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                            | No workarounds are provided with the alpha image.                                                                                                                                                                                                                             |

*Table continues...*



| Behavior | Description                                                                                  | Workaround |
|----------|----------------------------------------------------------------------------------------------|------------|
|          | receptacle is not yet available in the Alpha SW image. Therefore the USB port is inoperable. |            |

## 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 *Administering*.

### \* Note:

If you enable the ASG feature, the SSH server must use keyboard-interactive.

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

| 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 *Configuring Fabric Basics and Layer 2 Services*.

### Redirect Next-hop Filter Restrictions

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

- VSP 4000 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 *Configuring QoS and ACL-Based Traffic Filtering*.

- 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 *Configuring QoS and ACL-Based Traffic Filtering*.

### Filter Restrictions

The following table identifies known restrictions.

| Applies To                                            | Restriction                                                                                                                          |
|-------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| VSP 4000 Series<br>VSP 7200 Series<br>VSP 8000 Series | The switch does not support logging and PCAP with filters.                                                                           |
| <i>ACL restrictions</i>                               |                                                                                                                                      |
| VSP 4000 Series<br>VSP 7200 Series<br>VSP 8000 Series | Only port-based ACLs are supported on egress. VLAN-based ACLs are not supported.                                                     |
| VSP 4000 Series<br>VSP 7200 Series<br>VSP 8000 Series | IPv6 ingress and egress QoS ACL/filters are not supported.                                                                           |
| VSP 4000 Series<br>VSP 7200 Series<br>VSP 8000 Series | Control packet action is not supported on InVSN Filter or IPv6 filters generally.                                                    |
| VSP 4000 Series<br>VSP 7200 Series<br>VSP 8000 Series | 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<br>VSP 8000 Series                    | VLAN ID and VLAN_DOT1p attributes for untagged traffic are not supported for ingress/egress filters.                                 |
| VSP 4000 Series<br>VSP 7200 Series<br>VSP 8000 Series | Scaling numbers are reduced for IPv6 filters.                                                                                        |

*Table continues...*

| <b>Applies To</b>                                     | <b>Restriction</b>                                                                                                                       |
|-------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| VSP 4000 Series<br>VSP 7200 Series<br>VSP 8000 Series | The InVSN Filter does not support IP Shortcut traffic, only traffic on Layer 2 and Layer 3 VSNs.                                         |
| VSP 4000 Series<br>VSP 7200 Series<br>VSP 8000 Series | 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. |
| VSP 4000 Series<br>VSP 7200 Series<br>VSP 8000 Series | You can insert an inVsn ACL type for a Switched UNI only if the Switched UNI I-SID is associated with a platform VLAN.                   |
| <i>ACE restrictions</i>                               |                                                                                                                                          |
| VSP 4000 Series<br>VSP 7200 Series<br>VSP 8000 Series | When an ACE with action count is disabled, the statistics associated with the ACE are reset.                                             |
| VSP 4000 Series<br>VSP 7200 Series<br>VSP 8000 Series | Only security ACEs are supported on egress. QoS ACEs are not supported.                                                                  |
| VSP 4000 Series<br>VSP 7200 Series<br>VSP 8000 Series | ICMP type code qualifier is supported only on ingress filters.                                                                           |
| VSP 4000 Series<br>VSP 7200 Series<br>VSP 8000 Series | For port-based ACLs, you can configure VLAN qualifiers. Configuring port qualifiers are not permitted.                                   |
| VSP 4000 Series<br>VSP 7200 Series<br>VSP 8000 Series | For VLAN-based ACLs, you can configure port qualifiers. Configuring VLAN qualifiers are not permitted.                                   |
| VSP 4000 Series<br>VSP 7200 Series<br>VSP 8000 Series | Egress QoS filters are not supported for IPv6 filters.                                                                                   |
| VSP 4000 Series<br>VSP 7200 Series<br>VSP 8000 Series | Ingress QoS filters are not supported for IPv6 filters.                                                                                  |
| VSP 4000 Series<br>VSP 7200 Series                    | Source/Destination MAC addresses cannot be added as attributes for IPv6 filters ACEs.                                                    |

*Table continues...*

## Known Issues and Restrictions

| <b>Applies To</b>                                     | <b>Restriction</b>                                                                   |
|-------------------------------------------------------|--------------------------------------------------------------------------------------|
| VSP 8000 Series                                       |                                                                                      |
| VSP 4000 Series<br>VSP 7200 Series<br>VSP 8000 Series | If more than 256 IPv6 filters are configured, the number of IPv4 filters is reduced. |

# Chapter 8: Resolved Issues

This section details the issues that are resolved in this release.

## Fixes from Previous Releases

VOSS 7.0 incorporates all fixes from prior releases, up to and including VOSS 6.1.3 with the following exception:

- VSP8000-280 resolution is not included in VOSS 7.0.

## Resolved Issues in VOSS 7.0

| Issue number                                     | Description                                                                                                                                                                                                                                 |
|--------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| VOSS-1363                                        | The switch provides an NTP log message that indicates that the NTP server did not synchronize, even though one of the NTP servers synchronized correctly and the NTP stats show that it did.                                                |
| VOSS-1570                                        | Unable to use "no spbm 1 " acli command to remove smlt-virtual-bmac or smlt-peer-system-id.                                                                                                                                                 |
| VOSS-5467                                        | If a MinM Unicast packet (destined to a virtual BMAC) is sent over an FE tunnel to a vIST paired BEB, and that destination BEB has not yet learned the customer destination MAC, then the flooded packet is not received by its vIST peer.  |
| VOSS-5650                                        | Radius assigned priority for EAP clients' traffic should be configured per MAC address and not per interface.                                                                                                                               |
| VOSS-5935                                        | Added Log when duplicate IP address detected.                                                                                                                                                                                               |
| VOSS-6799                                        | Boot Config Host option should be present in Boot Config tab in EDM                                                                                                                                                                         |
| VOSS-6959                                        | On vsp4k platform, an ACL filter configured with default-action deny and control-packet-action deny, will drop packets matching a permit ACE.                                                                                               |
| VOSS-7266<br>VOSS-7291<br>VOSS-7294<br>VOSS-7295 | Traffic is mirrored only to one of the ports in the list and not sent out of second port. Now if the port to which traffic is mirrored is going down, the mirror action is not working even though a second port is available for mirroring |
| VOSS-7378                                        | The LED indicator is not correct when administratively enabling SFP/SFP+ fiber port on VSP 8404C chassis for the first time.                                                                                                                |
| VOSS-7386                                        | Disabling auto-neg 10G copper SFP+ causes operating speed display to full 10 instead of full 1000                                                                                                                                           |

*Table continues...*

Resolved Issues

| Issue number | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| VOSS-7396    | After EAP is globally enabled, RADIUS Reachability is triggered. It will take a few seconds until RADIUS Response packet is received and RADIUS Server is declared reachable. NEAP authentication will not be possible in this very short period of time, as RADIUS Server reachability is not known.                                                                                                                                                                                                                            |
| VOSS-7397    | VSP 8400 platform was not supporting "match route-dest" or "match route-type".                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| VOSS-7439    | When the RADIUS server changes the reachability state, no log message is generated. The switch sends a trap.                                                                                                                                                                                                                                                                                                                                                                                                                     |
| VOSS-7445    | If global EAPOL is disabled while NEAP clients are authenticated, error message CP1 [06/26/17 11:36:57.998:UTC] 0x000e8590 00000000 GlobalRouter EAP ERROR Unable to restore port 1/4 to Vlan 1 will indicate that VLAN membership or default-vlan-id has been affected.                                                                                                                                                                                                                                                         |
| VOSS-7514    | OSPF IPv6 Prefixes with LA-bit set were not considered in processing. Thus, routes derived from these prefixes with LA-bit set were not added to the routing table.                                                                                                                                                                                                                                                                                                                                                              |
| VOSS-7520    | The switch can experience an intermittent traffic loss where an autolearned client behind an authenticated client (EAP/NEAP) will have its traffic filtered. This issues occurs if the following conditions are met: <ul style="list-style-type: none"> <li>• NEAP authentication configured.</li> <li>• one MAC to learn before the main MHSa client so a NEAP RADIUS authentication must be tried.</li> <li>• RADIUS response for the main client to be received before the other one, even if it is learned later.</li> </ul> |
| VOSS-7733    | <Syslog> "Invalid module: INFO" log is populated into the logging file, if sys name includes space in-between.                                                                                                                                                                                                                                                                                                                                                                                                                   |
| VOSS-7805    | Mibwalk fails, Error: OID not increasing, stuck on mcast streams 228.19.15.1.                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| VOSS-7944    | SMLTSYSID is Blank in EDM (Firefox/Edge) over HTTPS.                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| VOSS-8749    | Add counter for received STP packets with TC bit set.                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| VOSS-8836    | Simplified vIST Peer switch local MAC is learned on a non sVIST port/tunnel on different VLAN (due to loop condition).                                                                                                                                                                                                                                                                                                                                                                                                           |
| VOSS-8923    | Problem installing 3rd party digital certificate.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| VOSS-9052    | LLDP: Interface name id is not correct on subport 2/3/4 of channelized port.                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| VOSS-9090    | The display format is different between <b>show ip route-summary</b> and <b>show ipv6 route-summary</b> .                                                                                                                                                                                                                                                                                                                                                                                                                        |
| VOSS-9200    | SM Multicast traffic is filtered on vIST interface in single homed scenario with sender off local interfaces and receiver on the vIST peer.                                                                                                                                                                                                                                                                                                                                                                                      |
| VOSS-9276    | The <b>IP &gt; IP &gt; ARP</b> table does not open in EDM.                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| VOSS-9317    | XMC failed to configure PVID when a port is not in the VLAN.                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

*Table continues...*

| Issue number | Description                                                                                                                                                        |
|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| VOSS-9339    | IPV6 tagged / untagged traffic action does not work with IPV6 INVLAN ACL Filters.                                                                                  |
| VOSS-9407    | After a loop condition, peer switch local MAC is allowed to be learned on non vIST/Simplified vIST port/tunnel on different VLAN.                                  |
| VOSS-9413    | Fixed rcErrorReturnCode attribute in mib.txt object.                                                                                                               |
| VOSS-9425    | Output of <code>showlldp neighbor</code> command is inconsistent.                                                                                                  |
| VOSS-9436    | Failed to recognize or bring online Finisar, JDSU, DAC, etc. pluggables                                                                                            |
| VOSS-9514    | VOSS is not forwarding NLB traffic.                                                                                                                                |
| VOSS-9554    | Intermittently a channel in a 40Gig channelized port is not recognized at bootup.                                                                                  |
| VOSS-9591    | Ability to display the Module revision number for the ESMs on VOSS platforms.                                                                                      |
| VOSS-9787    | For ESM re-insert, device should wait for 15 seconds to power it up.                                                                                               |
| VSP4000-160  | RSMLT not forwarding on behalf of its peer if the ingress vlan goes down and comes back up after the IST is lost.                                                  |
| VSP4000-173  | ISIS adjacency between two VSP 4850 goes down during an ARP storm. Reduced the maximum ARPs per second allowed for VSP 4800 platform.                              |
| VSP4000-182  | Fixed snmp-server authentication trap control.                                                                                                                     |
| VSP4000-186  | Problem with Solarwinds switch port mapper since upgrade from 6.0.1.2                                                                                              |
| VSP4000-187  | Set Interface default Ingress peak-rate and svc-rate to 0.                                                                                                         |
| VSP4000-188  | Switch doesn't authenticate after the eapol re-auth timer sent via Radius is expired                                                                               |
| VSP4000-190  | SSH Session stops working after closing the maximum allowed session on a box abruptly (by disabling the NIC or disconnecting the PC LAN cable).                    |
| VSP4000-194  | Switch hangs with 'ISIS ERROR isisCheckAndSlide: TLV overflow del tlv 184' condition repeatedly                                                                    |
| VSP4000-198  | Unable to change the IS-IS L1 metric value from the on box EDM for MLT interface                                                                                   |
| VSP4000-200  | High CPU Utilization lasting 2-3 minutes on multiple VSP nodes because IS-IS packets sent to wrong priority internal queue. VSP 4000 specific issue.               |
| VSP4000-201  | Fix to display the complete filtered bridge table output on EDM                                                                                                    |
| VSP4000-205  | Facing Wrong Remote Tunnel BMAC in L2 FIB entries.                                                                                                                 |
| VSP4000-206  | DHCP Clients physically disconnected and reconnected are no longer able to receive a DHCP IP address where DHCP_RELAY forwarding path was using a VRRP IP address. |
| VSP4000-207  | RADIUS Request is not initiated by switch using EAP-FAST.                                                                                                          |
| VSP4000-209  | Memory corruption caused node to reset when a vIST interface goes down due to peer interface going down                                                            |

*Table continues...*

Resolved Issues

| Issue number               | Description                                                                                                                                                                           |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| VSP7200-37<br>VSP8000-265  | Switch management becomes non-responsive for many minutes when VLAN experiences a down event after it has not been in the down state for a long time.                                 |
| VSP7200-40                 | Switch Reboots Intermittently With Error Process ssio (5304) died, exit status: uncaught signal: 6                                                                                    |
| VSP7200-53                 | Upgrade from 6.1.1.1 to 6.1.2.0 resulted in CLI <code>show sys-info</code> to display airflow as front to back.                                                                       |
| VSP8000-222                | SNMP access-policy with group restrictions did not work.                                                                                                                              |
| VSP8000-227                | After changing an OSPF area from NSSA to stub, some Type7 LSA entries were not cleaned up.                                                                                            |
| VSP8000-238                | After a loop condition, peer switch local MAC is allowed to be learned on none VIST/IST port/tunnel on a different vlan.                                                              |
| VSP8000-239                | Crash while running PIM Protocol under Simplified vIST setup.                                                                                                                         |
| VSP8000-240                | Elevated CPU utilization with specific control packets. Additional filtering of unsupported packets.                                                                                  |
| VSP8000-243                | "remoteArpReclInsert" Error Noticed When Accepting Routes From Another VRF.                                                                                                           |
| VSP8000-245                | Able to add Simplified IST MLT ports in other VLAN at the time of that VLANs creation through EDM.                                                                                    |
| VSP8000-246                | Traffic loss and node sluggishness when node is hit with large ICMP packets destined for the VRRP address.                                                                            |
| VSP8000-247                | Switch provides an NTP Log Message as if the Server did not sync up even after successful synchronization                                                                             |
| VSP8000-249                | ICMP response from VLAN IP instead of end device.                                                                                                                                     |
| VSP8000-252<br>VSP8000-260 | Dynamically changing the Metric Type in an ISIS redistribution Policy does not always take effect when those routes are imported into other VRFs.                                     |
| VSP8000-256                | Running <code>show fulltech</code> produces a large number of macsec stat get errors in <code>/var/log/messages</code> file when MACsec is not configured.                            |
| VSP8000-258                | Unable to access node via SSH/Telnet/Console after a session times out and cleanup causes node reset.                                                                                 |
| VSP8000-259                | Toggling IS-IS or booting a node may make inter-vrf redistributed routes disappear leaving less preferred routes.                                                                     |
| VSP8000-262                | Third party SFP's EEPROM read as 'GbicBx' when 'GbicLx' - dispute over EEPROM programming.                                                                                            |
| VSP8000-263<br>VOSS-9722   | HW watchdog may go off (silently) when system gets busy. Logic changed to not falsely trigger error and added logs to console and syslog to help identify actual SW watchdog failure. |
| VSP8000-264                | sFlow packets received from VSP 8200 do not egress through an adjacent ERS 8800 even though sFlow collector is reachable and IP Shortcuts is enabled.                                 |

*Table continues...*



| Issue number | Description                                                                                                                                                                                                                           |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| VSP8000-266  | VSP8404/VSP8404C <code>show pluggable-optical-modules detail</code> for 40G optics may cause link down.                                                                                                                               |
| VSP8000-267  | When MP BPG VPNv4 neighbor configured, in show run its reflecting as IPv6.                                                                                                                                                            |
| VSP8000-269  | IGMP record cleanup may crash node                                                                                                                                                                                                    |
| VSP8000-270  | MACsec-enabled Interfaces may fail after rekey. Changing between 4AN and 2AN mode may cause rekey to fail.                                                                                                                            |
| VSP8000-272  | Node crashed after executing <code>vlan action</code> command.                                                                                                                                                                        |
| VSP8000-273  | Missing hardware record for VRRP caused duplicate packet to the destination.                                                                                                                                                          |
| VSP8000-274  | Multicast group address is subscribed by two VLANs. Multicast traffic should hit both the VLANs but it's not happening.                                                                                                               |
| VSP8000-275  | ACL configured not working after upgrade to 6.1.0.0/6.1.1.0 from 5.1.1.1. MinM packets ingressing NNI are matching vlan qualifier on inVlan (CVID) ACL (the inner vlanID). Fix prevents the application of inVlan ACL on NNI traffic. |
| VSP8000-291  | VRRP PDU rate much higher than expected.                                                                                                                                                                                              |
| VSP8000-292  | Node resets when out of memory. Memory leak seen when <code>rcIsisSpbmMcastFibUniEntry</code> MIB object is polled over time.                                                                                                         |
| VSP8000-293  | OSPF area mismatch caused by configuration error due to OSPF enabling placed VLAN into OSPF backbone area. Warning added.                                                                                                             |
| VSP8000-295  | RADIUS authenticated RWA user not allowed through SCP.                                                                                                                                                                                |
| VSP8000-299  | EDM is not displaying optical transmit power level information.                                                                                                                                                                       |
| VSP8000-304  | Fixed security issue when authenticating through TACACS .                                                                                                                                                                             |
| VSP8000-305  | Fixed security issue when authenticating through TACACS.                                                                                                                                                                              |

# Appendix A: Related Information

## Features by Release

The following table identifies the release that first introduced feature support on a hardware platform. Each new release includes all the features from previous releases unless specifically stated otherwise.

**\* Note:**

Release 4.1 was the first VOSS release. Release numbers earlier than 4.1 are releases specific to the particular platform.

**Table 15: Features by Release**

| Feature                                                                                                                                                                                                                            | Product  | Release introduced |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------------------|
| Access Control List (ACL)-based filtering, including egress ACLs, ingress ACLs, Layer 2 to Layer 4 filtering, port-based, and VLAN-based<br><br>For more information, see <i>Configuring QoS and ACL-Based Traffic Filtering</i> . | VSP 4000 | 3.0                |
|                                                                                                                                                                                                                                    | VSP 7200 | 4.2.1              |
|                                                                                                                                                                                                                                    | VSP 8200 | 4.0                |
|                                                                                                                                                                                                                                    | VSP 8400 | 4.2                |
| Address Resolution Protocol (ARP) including Proxy ARP and Static ARP<br><br>For more information, see <i>Configuring IPv4 Routing</i> .                                                                                            | VSP 4000 | 3.0                |
|                                                                                                                                                                                                                                    | VSP 7200 | 4.2.1              |
|                                                                                                                                                                                                                                    | VSP 8200 | 4.0                |
|                                                                                                                                                                                                                                    | VSP 8400 | 4.2                |
| Alternative routes for IPv4<br><br>For more information, see <i>Configuring IPv4 Routing</i> .                                                                                                                                     | VSP 4000 | 3.1                |
|                                                                                                                                                                                                                                    | VSP 7200 | 4.2.1              |
|                                                                                                                                                                                                                                    | VSP 8200 | 4.0                |
|                                                                                                                                                                                                                                    | VSP 8400 | 4.2                |
| Alternative routes for IPv6<br><br>For more information, see <i>Configuring IPv6 Routing</i> .                                                                                                                                     | VSP 4000 | 5.1                |
|                                                                                                                                                                                                                                    | VSP 7200 | 5.1                |
|                                                                                                                                                                                                                                    | VSP 8200 | 5.1                |
|                                                                                                                                                                                                                                    | VSP 8400 | 5.1                |
| Automatic QoS                                                                                                                                                                                                                      | VSP 4000 | 3.0                |

*Table continues...*


| Feature                                                                                                                                                                                                                                          | Product  | Release introduced |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------------------|
| For more information, see <i>Configuring QoS and ACL-Based Traffic Filtering</i> .                                                                                                                                                               | VSP 7200 | 4.2.1              |
|                                                                                                                                                                                                                                                  | VSP 8200 | 4.0                |
|                                                                                                                                                                                                                                                  | VSP 8400 | 4.2                |
| Backup configuration and restore<br>For more information, see <i>Administering</i> .                                                                                                                                                             | VSP 4000 | 6.1.2              |
|                                                                                                                                                                                                                                                  | VSP 7200 | 6.1.2              |
|                                                                                                                                                                                                                                                  | VSP 8200 | 6.1.2              |
|                                                                                                                                                                                                                                                  | VSP 8400 | 6.1.2              |
| Border Gateway Protocol for IPv4 (BGPv4)<br>For more information, see <i>Configuring BGP Services</i> .                                                                                                                                          | VSP 4000 | 3.1                |
|                                                                                                                                                                                                                                                  | VSP 7200 | 4.2.1              |
|                                                                                                                                                                                                                                                  | VSP 8200 | 4.1                |
|                                                                                                                                                                                                                                                  | VSP 8400 | 4.2                |
| BGP+ (BGPv4 for IPv6).<br>For more information, see <i>Configuring BGP Services</i> .                                                                                                                                                            | VSP 4000 | 5.0                |
|                                                                                                                                                                                                                                                  | VSP 7200 | 5.0                |
|                                                                                                                                                                                                                                                  | VSP 8200 | 5.0                |
|                                                                                                                                                                                                                                                  | VSP 8400 | 5.0                |
| BGPv6<br>For more information, see <i>Configuring BGP Services</i> .                                                                                                                                                                             | VSP 4000 | 7.0                |
|                                                                                                                                                                                                                                                  | VSP 7200 | 7.0                |
|                                                                                                                                                                                                                                                  | VSP 8200 | 7.0                |
|                                                                                                                                                                                                                                                  | VSP 8400 | 7.0                |
| Bridge Protocol Data Unit (BPDU) Guard<br>For more information, see <i>Configuring VLANs, Spanning Tree, and NLB</i> .                                                                                                                           | VSP 4000 | 6.0                |
|                                                                                                                                                                                                                                                  | VSP 7200 | 6.0                |
|                                                                                                                                                                                                                                                  | VSP 8200 | 6.0                |
|                                                                                                                                                                                                                                                  | VSP 8400 | 6.0                |
| CFM configuration on C-VLANs<br>For more information, see <i>Troubleshooting</i> .                                                                                                                                                               | VSP 4000 | 3.1                |
|                                                                                                                                                                                                                                                  | VSP 7200 | n/a                |
|                                                                                                                                                                                                                                                  | VSP 8200 | n/a                |
|                                                                                                                                                                                                                                                  | VSP 8400 | n/a                |
| Certificate order priority<br> <b>Note:</b><br>Releases 6.0 and 6.0.1 do not support this feature.<br>For more information, see <i>Configuring Security</i> . | VSP 4000 | 5.1.2              |
|                                                                                                                                                                                                                                                  | VSP 7200 | 5.1.2              |
|                                                                                                                                                                                                                                                  | VSP 8200 | 5.1.2              |
|                                                                                                                                                                                                                                                  | VSP 8400 | 5.1.2              |
| Channelization of 40 Gbps ports<br>For more information, see the hardware documentation and <i>Administering</i> .                                                                                                                               | VSP 4000 | n/a                |
|                                                                                                                                                                                                                                                  | VSP 7200 | 4.2.1              |
|                                                                                                                                                                                                                                                  | VSP 8200 | 4.2                |

Table continues...

| Feature                                                                                                                                                     | Product  | Release introduced |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------------------|
|                                                                                                                                                             | VSP 8400 | 4.2                |
| Channelization of 100 Gbps ports<br>For more information, see the hardware documentation and <i>Administering</i> .                                         | VSP 4000 | n/a                |
|                                                                                                                                                             | VSP 7200 | n/a                |
|                                                                                                                                                             | VSP 8200 | n/a                |
|                                                                                                                                                             | VSP 8400 | n/a                |
| Command Line Interface (CLI)<br>For more information, see <i>Using CLI and EDM</i> .                                                                        | VSP 4000 | 3.0                |
|                                                                                                                                                             | VSP 7200 | 4.2.1              |
|                                                                                                                                                             | VSP 8200 | 4.0                |
|                                                                                                                                                             | VSP 8400 | 4.2                |
| DHCPv6 Guard<br>For more information, see <i>Configuring Security</i> .                                                                                     | VSP 4000 | 5.0                |
|                                                                                                                                                             | VSP 7200 | 5.0                |
|                                                                                                                                                             | VSP 8200 | 5.0                |
|                                                                                                                                                             | VSP 8400 | 5.0                |
| DHCP Snooping(IPv4)<br>For more information, see <i>Configuring Security</i> .                                                                              | VSP 4000 | 6.1                |
|                                                                                                                                                             | VSP 7200 | 6.1                |
|                                                                                                                                                             | VSP 8200 | 6.1                |
|                                                                                                                                                             | VSP 8400 | 6.1                |
| DHCP Snooping (IPv6)<br>For more information, see <i>Configuring Security</i> .                                                                             | VSP 4000 | 5.1                |
|                                                                                                                                                             | VSP 7200 | 5.1                |
|                                                                                                                                                             | VSP 8200 | 5.1                |
|                                                                                                                                                             | VSP 8400 | 5.1                |
| Digital Certificate/PKI<br><b>* Note:</b><br>Releases 6.0 and 6.0.1 do not support this feature.<br>For more information, see <i>Configuring Security</i> . | VSP 4000 | 5.1.2              |
|                                                                                                                                                             | VSP 7200 | 5.1.2              |
|                                                                                                                                                             | VSP 8200 | 5.1.2              |
|                                                                                                                                                             | VSP 8400 | 5.1.2              |
| Differentiated Services (DiffServ) including Per-Hop Behavior<br>For more information, see <i>Configuring QoS and ACL-Based Traffic Filtering</i> .         | VSP 4000 | 3.0                |
|                                                                                                                                                             | VSP 7200 | 4.2.1              |
|                                                                                                                                                             | VSP 8200 | 4.0                |
|                                                                                                                                                             | VSP 8400 | 4.2                |
| Directed Broadcast<br>For more information, see <i>Configuring Security</i> .                                                                               | VSP 4000 | 5.1.1              |
|                                                                                                                                                             | VSP 7200 | 5.1.1              |
|                                                                                                                                                             | VSP 8200 | 5.1.1              |
|                                                                                                                                                             | VSP 8400 | 5.1.1              |
| Distributed Virtual Routing (DvR) controller                                                                                                                | VSP 4000 | n/a                |

Table continues...

| Feature                                                                                                                                                                                                                                                             | Product  | Release introduced |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------------------|
| For more information, see <i>Configuring IPv4 Routing</i> .<br><b>!</b> <b>Important:</b><br>Because of a change in 6.0.1.2, Extreme Networks recommends a <i>minimum</i> software version of 6.0.1.2 in DvR deployments.                                           | VSP 7200 | 6.0.1              |
|                                                                                                                                                                                                                                                                     | VSP 8200 | 6.0.1              |
|                                                                                                                                                                                                                                                                     | VSP 8400 | 6.0.1              |
| Distributed Virtual Routing (DvR) leaf<br>For more information, see <i>Configuring IPv4 Routing</i> .<br><b>!</b> <b>Important:</b><br>Because of a change in 6.0.1.2, Extreme Networks recommends a <i>minimum</i> software version of 6.0.1.2 in DvR deployments. | VSP 4000 | 6.1                |
|                                                                                                                                                                                                                                                                     | VSP 7200 | 6.0.1              |
|                                                                                                                                                                                                                                                                     | VSP 8200 | 6.0.1              |
|                                                                                                                                                                                                                                                                     | VSP 8400 | 6.0.1              |
| Domain Name Service (DNS) client (IPv4)<br>For more information, see <i>Administering</i> .                                                                                                                                                                         | VSP 4000 | 3.0                |
|                                                                                                                                                                                                                                                                     | VSP 7200 | 4.2.1              |
|                                                                                                                                                                                                                                                                     | VSP 8200 | 4.0                |
|                                                                                                                                                                                                                                                                     | VSP 8400 | 4.2                |
| Dot1Q MIB <ul style="list-style-type: none"> <li>• dot1VlanCurrentTable</li> <li>• dot1qVlanStaticTable</li> <li>• dot1qPortVlanTable</li> <li>• dot1dBasePortEntry</li> <li>• dot1qVlanNumDelete</li> </ul>                                                        | VSP 4000 | 6.1.2              |
|                                                                                                                                                                                                                                                                     | VSP 7200 | 6.1.2              |
|                                                                                                                                                                                                                                                                     | VSP 8200 | 6.1.2              |
|                                                                                                                                                                                                                                                                     | VSP 8400 | 6.1.2              |
| DNS client (IPv6)<br>For more information, see <i>Administering</i> .                                                                                                                                                                                               | VSP 4000 | 4.1                |
|                                                                                                                                                                                                                                                                     | VSP 7200 | 4.2.1              |
|                                                                                                                                                                                                                                                                     | VSP 8200 | 4.1                |
|                                                                                                                                                                                                                                                                     | VSP 8400 | 4.2                |
| Dynamic ARP Inspection (DAI)<br>For more information, see <i>Configuring Security</i> .                                                                                                                                                                             | VSP 4000 | 6.1                |
|                                                                                                                                                                                                                                                                     | VSP 7200 | 6.1                |
|                                                                                                                                                                                                                                                                     | VSP 8200 | 6.1                |
|                                                                                                                                                                                                                                                                     | VSP 8400 | 6.1                |
| Dynamic Host Configuration Protocol (DHCP) Relay, DHCP Option 82<br>For more information, see <i>Configuring IPv4 Routing</i> .                                                                                                                                     | VSP 4000 | 3.0                |
|                                                                                                                                                                                                                                                                     | VSP 7200 | 4.2.1              |
|                                                                                                                                                                                                                                                                     | VSP 8200 | 4.0                |
|                                                                                                                                                                                                                                                                     | VSP 8400 | 4.2                |
| Dynamic Nickname Assignment                                                                                                                                                                                                                                         | VSP 4000 | 7.0                |

Table continues...

| Feature                                                                                                                      | Product  | Release introduced      |
|------------------------------------------------------------------------------------------------------------------------------|----------|-------------------------|
| For more information, see <i>Configuring Fabric Basics and Layer 2 Services</i> .                                            |          | VSP 4450 models only    |
|                                                                                                                              | VSP 7200 | 7.0                     |
|                                                                                                                              | VSP 8200 | 7.0                     |
|                                                                                                                              | VSP 8400 | 7.0                     |
| Egress port mirror<br>For more information, see <i>Troubleshooting</i> .                                                     | VSP 4000 | 4.0                     |
|                                                                                                                              | VSP 7200 | n/a                     |
|                                                                                                                              | VSP 8200 | n/a                     |
|                                                                                                                              | VSP 8400 | n/a                     |
| Egress port shaper<br>For more information, see <i>Configuring QoS and ACL-Based Traffic Filtering</i> .                     | VSP 4000 | 3.0                     |
|                                                                                                                              | VSP 7200 | 4.2.1                   |
|                                                                                                                              | VSP 8200 | 4.0                     |
|                                                                                                                              | VSP 8400 | 4.2                     |
| Encryption modules<br>The encryption modules file is included in the runtime software image file; it is not a separate file. | VSP 4000 | 4.2                     |
|                                                                                                                              | VSP 7200 | 4.2.1                   |
|                                                                                                                              | VSP 8200 | 4.2                     |
|                                                                                                                              | VSP 8400 | 4.2                     |
| Energy Saver<br>For more information, see <i>Administering</i> .                                                             | VSP 4000 | 7.0                     |
|                                                                                                                              | VSP 7200 | 7.0<br>VSP 7254XTQ only |
|                                                                                                                              | VSP 8200 | n/a                     |
|                                                                                                                              | VSP 8400 | 7.0                     |
| Enhanced Secure mode<br>For more information, see <i>Administering</i> .                                                     | VSP 4000 | 4.2                     |
|                                                                                                                              | VSP 7200 | 4.2.1                   |
|                                                                                                                              | VSP 8200 | 4.2                     |
|                                                                                                                              | VSP 8400 | 4.2                     |
| Enhanced Secure mode for JITC and non-JITC sub-modes.<br>For more information, see <i>Administering</i> .                    | VSP 4000 | 5.1                     |
|                                                                                                                              | VSP 7200 | 5.1                     |
|                                                                                                                              | VSP 8200 | 5.1                     |
|                                                                                                                              | VSP 8400 | 5.1                     |
| Enterprise Device Manager (EDM)<br>For more information, see <i>Using CLI and EDM</i> .                                      | VSP 4000 | 3.0                     |
|                                                                                                                              | VSP 7200 | 4.2.1                   |
|                                                                                                                              | VSP 8200 | 4.0                     |
|                                                                                                                              | VSP 8400 | 4.2                     |
| EDM representation of physical LED status                                                                                    | VSP 4000 | 3.0                     |

Table continues...

| Feature                                                                                                                                                                                                                                                                               | Product  | Release introduced |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------------------|
| For more information, see the hardware documentation for your platform.                                                                                                                                                                                                               | VSP 7200 | 4.2.1              |
|                                                                                                                                                                                                                                                                                       | VSP 8200 | 4.2                |
|                                                                                                                                                                                                                                                                                       | VSP 8400 | 4.2                |
| Entity MIB - Physical Table<br>For more information, see <i>Administering</i> .                                                                                                                                                                                                       | VSP 4000 | 6.0                |
|                                                                                                                                                                                                                                                                                       | VSP 7200 | 6.0                |
|                                                                                                                                                                                                                                                                                       | VSP 8200 | 6.0                |
|                                                                                                                                                                                                                                                                                       | VSP 8400 | 6.0                |
| Entity MIB enhancements and integration for the following:<br><ul style="list-style-type: none"> <li>• Physical Table</li> <li>• Alias Mapping Table</li> <li>• Physical Contains Table</li> <li>• Last Change Time Table</li> </ul> For more information, see <i>Administering</i> . | VSP 4000 | 6.1.2              |
|                                                                                                                                                                                                                                                                                       | VSP 7200 | 6.1.2              |
|                                                                                                                                                                                                                                                                                       | VSP 8200 | 6.1.2              |
|                                                                                                                                                                                                                                                                                       | VSP 8400 | 6.1.2              |
| Equal Cost Multiple Path (ECMP) for IPv4<br>For more information, see <i>Configuring IPv4 Routing</i> .                                                                                                                                                                               | VSP 4000 | 3.0                |
|                                                                                                                                                                                                                                                                                       | VSP 7200 | 4.2.1              |
|                                                                                                                                                                                                                                                                                       | VSP 8200 | 4.0                |
|                                                                                                                                                                                                                                                                                       | VSP 8400 | 4.2                |
| ECMP for IPv6<br>For more information, see the following documents:<br><ul style="list-style-type: none"> <li>• <i>Configuring IPv4 Routing</i></li> <li>• <i>Configuring BGP Services</i></li> <li>• <i>Configuring IPv6 Routing</i></li> </ul>                                      | VSP 4000 | 5.1                |
|                                                                                                                                                                                                                                                                                       | VSP 7200 | 5.1                |
|                                                                                                                                                                                                                                                                                       | VSP 8200 | 5.1                |
|                                                                                                                                                                                                                                                                                       | VSP 8400 | 5.1                |
| ECMP support for VXLAN Gateway and Fabric Extend<br>For more information, see <i>Configuring VLANs, Spanning Tree, and NLB</i> .                                                                                                                                                      | VSP 4000 | n/a                |
|                                                                                                                                                                                                                                                                                       | VSP 7200 | 6.0                |
|                                                                                                                                                                                                                                                                                       | VSP 8200 | 6.0                |
|                                                                                                                                                                                                                                                                                       | VSP 8400 | 6.0                |
| Equal Cost Trees (ECT)<br>For more information, see <i>Configuring Fabric Basics and Layer 2 Services</i> ..                                                                                                                                                                          | VSP 4000 | 3.0                |
|                                                                                                                                                                                                                                                                                       | VSP 7200 | 4.2.1              |
|                                                                                                                                                                                                                                                                                       | VSP 8200 | 4.0                |
|                                                                                                                                                                                                                                                                                       | VSP 8400 | 4.2                |
| E-Tree and Private VLANs<br>For more information about E-Tree, see <i>Configuring Fabric Basics and Layer 2 Services</i> .<br>For more information about Private VLANs, see <i>Configuring VLANs, Spanning Tree, and NLB</i> .                                                        | VSP 4000 | 3.0.1              |
|                                                                                                                                                                                                                                                                                       | VSP 7200 | 4.2.1              |
|                                                                                                                                                                                                                                                                                       | VSP 8200 | 4.1                |
|                                                                                                                                                                                                                                                                                       | VSP 8400 | 4.2                |

Table continues...

Related Information

| Feature                                                                                                                                       | Product  | Release introduced |
|-----------------------------------------------------------------------------------------------------------------------------------------------|----------|--------------------|
| For information about how to configure MLT and Private VLANs, see <i>Configuring Link Aggregation, MLT, SMLT, and vIST</i> .                  |          |                    |
| Extensible Authentication Protocol (EAP) and EAP over LAN (EAPoL)<br><br>For more information, see <i>Configuring Security</i> .              | VSP 4000 | 4.1                |
|                                                                                                                                               | VSP 7200 | 4.2.1              |
|                                                                                                                                               | VSP 8200 | 4.1                |
|                                                                                                                                               | VSP 8400 | 4.2                |
| EAPoL MHMA-MV<br><br>For more information, see <i>Configuring Security</i> .                                                                  | VSP 4000 | 5.1                |
|                                                                                                                                               | VSP 7200 | 5.1                |
|                                                                                                                                               | VSP 8200 | 5.1                |
|                                                                                                                                               | VSP 8400 | 5.1                |
| EAPoL enhancements: Enhanced MHMV, Fail Open VLAN, Guest VLAN<br><br>For more information, see <i>Configuring Security</i> .                  | VSP 4000 | 6.1                |
|                                                                                                                                               | VSP 7200 | 6.1                |
|                                                                                                                                               | VSP 8200 | 6.1                |
|                                                                                                                                               | VSP 8400 | 6.1                |
| External BGP (EBGP)<br><br>For more information, see <i>Configuring BGP Services</i> .                                                        | VSP 4000 | 3.1                |
|                                                                                                                                               | VSP 7200 | 4.2.1              |
|                                                                                                                                               | VSP 8200 | 4.1                |
|                                                                                                                                               | VSP 8400 | 4.2                |
| Extreme Management Center (XMC) backup configuration ZIP file<br><br>For more information, see Extreme Management Center (XMC) documentation. | VSP 4000 | 6.1.2              |
|                                                                                                                                               | VSP 7200 | 6.1.2              |
|                                                                                                                                               | VSP 8200 | 6.1.2              |
|                                                                                                                                               | VSP 8400 | 6.1.2              |
| Fabric Attach<br><br>For more information, see <i>Configuring Fabric Basics and Layer 2 Service</i> .                                         | VSP 4000 | 5.0                |
|                                                                                                                                               | VSP 7200 | 5.0                |
|                                                                                                                                               | VSP 8200 | 5.0                |
|                                                                                                                                               | VSP 8400 | 5.0                |
| Fabric Attach Zero Touch Client Attachment<br><br>For more information, see <i>Configuring Fabric Basics and Layer 2 Service</i> .            | VSP 4000 | 6.0                |
|                                                                                                                                               | VSP 7200 | 6.0                |
|                                                                                                                                               | VSP 8200 | 6.0                |
|                                                                                                                                               | VSP 8400 | 6.0                |
| Fabric BCB mode<br><br>For more information, see <i>Configuring Fabric Basics and Layer 2 Service</i> .                                       | VSP 4000 | 3.0                |
|                                                                                                                                               | VSP 7200 | 4.2.1              |
|                                                                                                                                               | VSP 8200 | 4.0                |
|                                                                                                                                               | VSP 8400 | 4.2                |

Table continues...



| Feature                                                                                                                                                                                                                                                                                                                           | Product  | Release introduced                                 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------------------------------------------------|
| Fabric BEB mode<br>For more information, see <i>Configuring Fabric Basics and Layer 2 Service</i> .                                                                                                                                                                                                                               | VSP 4000 | 3.0                                                |
|                                                                                                                                                                                                                                                                                                                                   | VSP 7200 | 4.2.1                                              |
|                                                                                                                                                                                                                                                                                                                                   | VSP 8200 | 4.0                                                |
|                                                                                                                                                                                                                                                                                                                                   | VSP 8400 | 4.2                                                |
| Fabric Connect services with switch cluster<br>For more information, see the Fabric Connect documents:<br><ul style="list-style-type: none"> <li>• <i>Configuring Fabric Basics and Layer 2 Services</i></li> <li>• <i>Configuring Fabric Layer 3 Services</i></li> <li>• <i>Configuring Fabric Multicast Services</i></li> </ul> | VSP 4000 | 4.1                                                |
|                                                                                                                                                                                                                                                                                                                                   | VSP 7200 | 4.2.1                                              |
|                                                                                                                                                                                                                                                                                                                                   | VSP 8200 | 4.0                                                |
|                                                                                                                                                                                                                                                                                                                                   | VSP 8400 | 4.2                                                |
| Fabric Extend<br>For more information, see <i>Configuring Fabric Basics and Layer 2 Service</i> .<br>*Platforms require an Open Networking Adapter (ONA).                                                                                                                                                                         | VSP 4000 | 5.0*                                               |
|                                                                                                                                                                                                                                                                                                                                   | VSP 7200 | 5.0                                                |
|                                                                                                                                                                                                                                                                                                                                   | VSP 8200 | 5.0                                                |
|                                                                                                                                                                                                                                                                                                                                   | VSP 8400 | 5.0                                                |
| Fabric RSPAN (Mirror to I-SID)<br>For more information, see <i>Troubleshooting</i> .                                                                                                                                                                                                                                              | VSP 4000 | 6.0<br>Flow-based mirroring into single I-SID only |
|                                                                                                                                                                                                                                                                                                                                   | VSP 7200 | 6.0                                                |
|                                                                                                                                                                                                                                                                                                                                   | VSP 8200 | 6.0                                                |
|                                                                                                                                                                                                                                                                                                                                   | VSP 8400 | 6.0                                                |
| FDB protected by port (MAC security limit-learning)<br>For more information, see <i>Configuring VLANs, Spanning Tree, and NLB</i> .                                                                                                                                                                                               | VSP 4000 | 3.0                                                |
|                                                                                                                                                                                                                                                                                                                                   | VSP 7200 | n/a                                                |
|                                                                                                                                                                                                                                                                                                                                   | VSP 8200 | n/a                                                |
|                                                                                                                                                                                                                                                                                                                                   | VSP 8400 | n/a                                                |
| File Transfer Protocol (FTP) server and client (IPv4)<br>For more information, see <i>Administering</i> .                                                                                                                                                                                                                         | VSP 4000 | 3.0                                                |
|                                                                                                                                                                                                                                                                                                                                   | VSP 7200 | 4.2.1                                              |
|                                                                                                                                                                                                                                                                                                                                   | VSP 8200 | 4.0                                                |
|                                                                                                                                                                                                                                                                                                                                   | VSP 8400 | 4.2                                                |
| File Transfer Protocol (FTP) server and client (IPv6)<br>For more information, see <i>Administering</i> .                                                                                                                                                                                                                         | VSP 4000 | 4.1                                                |
|                                                                                                                                                                                                                                                                                                                                   | VSP 7200 | 4.2.1                                              |
|                                                                                                                                                                                                                                                                                                                                   | VSP 8200 | 4.1                                                |
|                                                                                                                                                                                                                                                                                                                                   | VSP 8400 | 4.2                                                |
| First Hop Security (FHS)<br>For more information, see <i>Configuring Security</i> .                                                                                                                                                                                                                                               | VSP 4000 | 5.0                                                |
|                                                                                                                                                                                                                                                                                                                                   | VSP 7200 | 5.0                                                |
|                                                                                                                                                                                                                                                                                                                                   | VSP 8200 | 5.0                                                |

Table continues...

| Feature                                                                                            | Product  | Release introduced |
|----------------------------------------------------------------------------------------------------|----------|--------------------|
|                                                                                                    | VSP 8400 | 5.0                |
| FHS - DHCPv6 Guard                                                                                 | VSP 4000 | 5.0                |
|                                                                                                    | VSP 7200 | 5.0                |
|                                                                                                    | VSP 8200 | 5.0                |
|                                                                                                    | VSP 8400 | 5.0                |
| FHS - DHCP Snooping (IPv4)                                                                         | VSP 4000 | 6.1                |
|                                                                                                    | VSP 7200 | 6.1                |
|                                                                                                    | VSP 8200 | 6.1                |
|                                                                                                    | VSP 8400 | 6.1                |
| FHS - DHCP Snooping (IPv6)                                                                         | VSP 4000 | 5.1                |
|                                                                                                    | VSP 7200 | 5.1                |
|                                                                                                    | VSP 8200 | 5.1                |
|                                                                                                    | VSP 8400 | 5.1                |
| FHS - IP Source Guard (IPv4 and IPv6)                                                              | VSP 4000 | 6.1                |
|                                                                                                    | VSP 7200 | 6.1                |
|                                                                                                    | VSP 8200 | 6.1                |
|                                                                                                    | VSP 8400 | 6.1                |
| FHS - Neighbor Discovery Inspection (IPv6)                                                         | VSP 4000 | 5.1                |
|                                                                                                    | VSP 7200 | 5.1                |
|                                                                                                    | VSP 8200 | 5.1                |
|                                                                                                    | VSP 8400 | 5.1                |
| FHS - IPv6 Router Advertisement (RA) Guard                                                         | VSP 4000 | 5.0                |
|                                                                                                    | VSP 7200 | 5.0                |
|                                                                                                    | VSP 8200 | 5.0                |
|                                                                                                    | VSP 8400 | 5.0                |
| Flight Recorder for system health monitoring<br>For more information, see <i>Troubleshooting</i> . | VSP 4000 | 3.0                |
|                                                                                                    | VSP 7200 | 4.2.1              |
|                                                                                                    | VSP 8200 | 4.0                |
|                                                                                                    | VSP 8400 | 4.2                |
| Gratuitous ARP filtering<br>For more information, see <i>Configuring IPv4 Routing</i> .            | VSP 4000 | 4.2                |
|                                                                                                    | VSP 7200 | 4.2.1              |
|                                                                                                    | VSP 8200 | 4.2                |
|                                                                                                    | VSP 8400 | 4.2                |
| High Availability-CPU (HA-CPU)                                                                     | VSP 4000 | n/a                |

Table continues...

| Feature                                                                                                                                                                                                                                            | Product  | Release introduced |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------------------|
| For more information, see <i>Administering</i> .                                                                                                                                                                                                   | VSP 7200 | n/a                |
|                                                                                                                                                                                                                                                    | VSP 8200 | n/a                |
|                                                                                                                                                                                                                                                    | VSP 8400 | n/a                |
| IEEE 802.1ag Connectivity Fault Management (CFM):<br><ul style="list-style-type: none"> <li>• Layer 2 Ping</li> <li>• TraceRoute</li> <li>• TraceTree</li> </ul> For more information, see <i>Configuring Fabric Basics and Layer 2 Services</i> . | VSP 4000 | 3.1                |
|                                                                                                                                                                                                                                                    | VSP 7200 | 4.2.1              |
|                                                                                                                                                                                                                                                    | VSP 8200 | 4.0                |
|                                                                                                                                                                                                                                                    | VSP 8400 | 4.2                |
| IEEE 802.3X Pause frame transmit<br>For more information, see <i>Administering</i> .                                                                                                                                                               | VSP 4000 | 6.0                |
|                                                                                                                                                                                                                                                    | VSP 7200 | 6.0                |
|                                                                                                                                                                                                                                                    | VSP 8200 | 6.0                |
|                                                                                                                                                                                                                                                    | VSP 8400 | 6.0                |
| Industry Standard Discovery Protocol (ISDP) (CDP compatible)<br>For more information, see <i>Administering</i> .                                                                                                                                   | VSP 4000 | 6.0                |
|                                                                                                                                                                                                                                                    | VSP 7200 | 6.0                |
|                                                                                                                                                                                                                                                    | VSP 8200 | 6.0                |
|                                                                                                                                                                                                                                                    | VSP 8400 | 6.0                |
| Ingress dual rate port policers<br>For more information, see <i>Configuring QoS and ACL-Based Traffic Filtering</i> .                                                                                                                              | VSP 4000 | 3.0                |
|                                                                                                                                                                                                                                                    | VSP 7200 | n/a                |
|                                                                                                                                                                                                                                                    | VSP 8200 | n/a                |
|                                                                                                                                                                                                                                                    | VSP 8400 | n/a                |
| Internal BGP (IBGP)<br>For more information, see <i>Configuring BGP Services</i> .                                                                                                                                                                 | VSP 4000 | 4.2                |
|                                                                                                                                                                                                                                                    | VSP 7200 | 4.2.1              |
|                                                                                                                                                                                                                                                    | VSP 8200 | 4.2                |
|                                                                                                                                                                                                                                                    | VSP 8400 | 4.2                |
| Internet Control Message Protocol (ICMP)<br>For more information, see <i>Configuring IPv4 Routing</i> .                                                                                                                                            | VSP 4000 | 3.0                |
|                                                                                                                                                                                                                                                    | VSP 7200 | 4.2.1              |
|                                                                                                                                                                                                                                                    | VSP 8200 | 4.0                |
|                                                                                                                                                                                                                                                    | VSP 8400 | 4.2                |
| ICMP broadcast and multicast enable or disable<br>For more information, see <i>Configuring IPv4 Routing and Configuring IPv6 Routing</i> .                                                                                                         | VSP 4000 | 5.1                |
|                                                                                                                                                                                                                                                    | VSP 7200 | 5.1                |
|                                                                                                                                                                                                                                                    | VSP 8200 | 5.1                |
|                                                                                                                                                                                                                                                    | VSP 8400 | 5.1                |
| Internet Group Management Protocol (IGMP), including virtualization                                                                                                                                                                                | VSP 4000 | 3.0                |
|                                                                                                                                                                                                                                                    | VSP 7200 | 4.2.1              |

Table continues...

| Feature                                                                                                                                                            | Product  | Release introduced |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------------------|
| For more information, see <i>Configuring IP Multicast Routing Protocols</i> .                                                                                      | VSP 8200 | 4.0.1              |
|                                                                                                                                                                    | VSP 8400 | 4.2                |
| Internet Key Exchange (IKE) v2<br>* <b>Note:</b><br>Releases 6.0 and 6.0.1 do not support this feature.<br>For more information, see <i>Configuring Security</i> . | VSP 4000 | 5.1.2              |
|                                                                                                                                                                    | VSP 7200 | 5.1.2              |
|                                                                                                                                                                    | VSP 8200 | 5.1.2              |
|                                                                                                                                                                    | VSP 8400 | 5.1.2              |
| Inter-VSN routing<br>For more information, see <i>Configuring Fabric Layer 3 Services</i> .                                                                        | VSP 4000 | 3.0                |
|                                                                                                                                                                    | VSP 7200 | 4.2.1              |
|                                                                                                                                                                    | VSP 8200 | 4.0                |
|                                                                                                                                                                    | VSP 8400 | 4.2                |
| InVSN Filter<br>For more information, see <i>Configuring QoS and ACL-Based Traffic Filtering</i> .                                                                 | VSP 4000 | 7.0                |
|                                                                                                                                                                    | VSP 7200 | 7.0                |
|                                                                                                                                                                    | VSP 8200 | 7.0                |
|                                                                                                                                                                    | VSP 8400 | 7.0                |
| IP Multicast over Fabric Connect<br>For more information, see <i>Configuring Fabric Multicast Services</i> .                                                       | VSP 4000 | 3.1                |
|                                                                                                                                                                    | VSP 7200 | 4.2.1              |
|                                                                                                                                                                    | VSP 8200 | 4.1                |
|                                                                                                                                                                    | VSP 8400 | 4.2                |
| IP route policies<br>For more information, see <i>Configuring IPv4 Routing</i> .                                                                                   | VSP 4000 | 3.0                |
|                                                                                                                                                                    | VSP 7200 | 4.2.1              |
|                                                                                                                                                                    | VSP 8200 | 4.0                |
|                                                                                                                                                                    | VSP 8400 | 4.2                |
| IP Shortcut routing including ECMP<br>For more information, see <i>Configuring Fabric Layer 3 Services</i> .                                                       | VSP 4000 | 3.0                |
|                                                                                                                                                                    | VSP 7200 | 4.2.1              |
|                                                                                                                                                                    | VSP 8200 | 4.0                |
|                                                                                                                                                                    | VSP 8400 | 4.2                |
| IP Source Guard (IPv4 and IPv6)<br>For more information, see <i>Configuring Security</i> .                                                                         | VSP 4000 | 6.1                |
|                                                                                                                                                                    | VSP 7200 | 6.1                |
|                                                                                                                                                                    | VSP 8200 | 6.1                |
|                                                                                                                                                                    | VSP 8400 | 6.1                |
| IP Source Routing enable or disable<br>For more information, see <i>Configuring IPv4 Routing and Configuring IPv6 Routing</i> .                                    | VSP 4000 | 5.1                |
|                                                                                                                                                                    | VSP 7200 | 5.1                |
|                                                                                                                                                                    | VSP 8200 | 5.1                |
|                                                                                                                                                                    | VSP 8400 | 5.1                |

Table continues...

| Feature                                                                                                                     | Product  | Release introduced |
|-----------------------------------------------------------------------------------------------------------------------------|----------|--------------------|
| IPsec for the Out-of-band management port (IPv4)<br>For more information, see <i>Configuring Security</i> .                 | VSP 4000 | 4.2                |
|                                                                                                                             | VSP 7200 | 4.2.1              |
|                                                                                                                             | VSP 8200 | 4.2                |
|                                                                                                                             | VSP 8400 | 4.2                |
| IPsec for the Out-of-band management port (IPv6)<br>For more information, see <i>Configuring Security</i> .                 | VSP 4000 | 6.0                |
|                                                                                                                             | VSP 7200 | 6.0                |
|                                                                                                                             | VSP 8200 | 6.0                |
|                                                                                                                             | VSP 8400 | 6.0                |
| IPv6 (OSPFv3, VRRP, RSMLT, DHCP Relay, IPv4 in IPv6 tunnels)<br>For more information, see <i>Configuring IPv6 Routing</i> . | VSP 4000 | 4.1                |
|                                                                                                                             | VSP 7200 | 4.2.1              |
|                                                                                                                             | VSP 8200 | 4.1                |
|                                                                                                                             | VSP 8400 | 4.2                |
| IPv6 ACL filters<br>For more information, see <i>Configuring QoS and ACL-Based Traffic Filtering</i> .                      | VSP 4000 | 4.1                |
|                                                                                                                             | VSP 7200 | 4.2.1              |
|                                                                                                                             | VSP 8200 | 4.1                |
|                                                                                                                             | VSP 8400 | 4.2                |
| IPv6 egress filters<br>For more information, see <i>Configuring QoS and ACL-Based Traffic Filtering</i> .                   | VSP 4000 | 7.0                |
|                                                                                                                             | VSP 7200 | 7.0                |
|                                                                                                                             | VSP 8200 | 7.0                |
|                                                                                                                             | VSP 8400 | 7.0                |
| IPv6 inter-VSN routing<br>For more information, see <i>Configuring Fabric Layer 3 Services</i> .                            | VSP 4000 | 4.1                |
|                                                                                                                             | VSP 7200 | 4.2.1              |
|                                                                                                                             | VSP 8200 | 4.1                |
|                                                                                                                             | VSP 8400 | 4.2                |
| IPv6 mode flag ( <code>boot config flags ipv6-mode</code> )<br>For more information, see <i>Configuring IPv6 Routing</i> .  | VSP 4000 | n/a                |
|                                                                                                                             | VSP 7200 | 4.2.1              |
|                                                                                                                             | VSP 8200 | 4.1                |
|                                                                                                                             | VSP 8400 | 4.2                |
| IPv6 Router Advertisement (RA) Guard<br>For more information, see <i>Configuring Security</i> .                             | VSP 4000 | 5.0                |
|                                                                                                                             | VSP 7200 | 5.0                |
|                                                                                                                             | VSP 8200 | 5.0                |
|                                                                                                                             | VSP 8400 | 5.0                |
| IPv6 Shortcut routing<br>For more information, see <i>Configuring Fabric Layer 3 Services</i> .                             | VSP 4000 | 4.1                |
|                                                                                                                             | VSP 7200 | 4.2.1              |

Table continues...

| Feature                                                                                                                                                                                                                                                                                                                                             | Product  | Release introduced |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------------------|
|                                                                                                                                                                                                                                                                                                                                                     | VSP 8200 | 4.1                |
|                                                                                                                                                                                                                                                                                                                                                     | VSP 8400 | 4.2                |
| IPv6 Virtualization for the following features and functions:                                                                                                                                                                                                                                                                                       | VSP 4000 | 7.0                |
| <ul style="list-style-type: none"> <li>• IPv6 Interfaces and IPv6 Static Routes in VRFs and Layer 3 VSNs</li> <li>• ECMP and Alternative route</li> <li>• Route redistribution for static and direct routes</li> <li>• VRRPv3 for IPv6</li> <li>• DHCP Relay</li> <li>• IPv6 Reverse Path Forwarding</li> <li>• ICMP Ping and Traceroute</li> </ul> | VSP 7200 | 7.0                |
|                                                                                                                                                                                                                                                                                                                                                     | VSP 8200 | 7.0                |
|                                                                                                                                                                                                                                                                                                                                                     | VSP 8400 | 7.0                |
| For more information, see <i>Configuring IPv6 Routing</i> .                                                                                                                                                                                                                                                                                         |          |                    |
| IS-IS accept policies                                                                                                                                                                                                                                                                                                                               | VSP 4000 | 4.1                |
| For more information, see <i>Configuring Fabric Layer 3 Services</i> .                                                                                                                                                                                                                                                                              | VSP 7200 | 4.2.1              |
|                                                                                                                                                                                                                                                                                                                                                     | VSP 8200 | 4.1                |
|                                                                                                                                                                                                                                                                                                                                                     | VSP 8400 | 4.2                |
| IS-IS authentication with SHA-256                                                                                                                                                                                                                                                                                                                   | VSP 4000 | 7.0                |
| For more information, see <i>Configuring Fabric Basics and Layer 2 Services</i> .                                                                                                                                                                                                                                                                   | VSP 7200 | 7.0                |
|                                                                                                                                                                                                                                                                                                                                                     | VSP 8200 | 7.0                |
|                                                                                                                                                                                                                                                                                                                                                     | VSP 8400 | 7.0                |
| Key Health Indicator (KHI)                                                                                                                                                                                                                                                                                                                          | VSP 4000 | 3.0                |
| For more information, see <i>Monitoring Performance</i> .                                                                                                                                                                                                                                                                                           | VSP 7200 | 4.2.1              |
|                                                                                                                                                                                                                                                                                                                                                     | VSP 8200 | 4.0                |
|                                                                                                                                                                                                                                                                                                                                                     | VSP 8400 | 4.2                |
| Layer 2 Video Surveillance install script                                                                                                                                                                                                                                                                                                           | VSP 4000 | 6.1                |
| For more information, see <i>Configuring Fabric Basics and Layer 2 Services</i> .                                                                                                                                                                                                                                                                   | VSP 7200 | 6.1                |
|                                                                                                                                                                                                                                                                                                                                                     | VSP 8200 | 6.1                |
|                                                                                                                                                                                                                                                                                                                                                     | VSP 8400 | 6.1                |
| Layer 2 Virtual Service Network (VSN)                                                                                                                                                                                                                                                                                                               | VSP 4000 | 3.0                |
| For more information, see <i>Configuring Fabric Basics and Layer 2 Services</i> .                                                                                                                                                                                                                                                                   | VSP 7200 | 4.2.1              |
|                                                                                                                                                                                                                                                                                                                                                     | VSP 8200 | 4.0                |
|                                                                                                                                                                                                                                                                                                                                                     | VSP 8400 | 4.2                |
| Layer 3 switch cluster (Routed SMLT) with Simplified vIST                                                                                                                                                                                                                                                                                           | VSP 4000 | 4.1                |
|                                                                                                                                                                                                                                                                                                                                                     | VSP 7200 | 4.2.1              |
|                                                                                                                                                                                                                                                                                                                                                     | VSP 8200 | 4.0.1              |

Table continues...

| Feature                                                                                                                                                               | Product  | Release introduced |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------------------|
| For more information, see <i>Configuring Link Aggregation, MLT, SMLT, and vIST</i> .                                                                                  | VSP 8400 | 4.2                |
| Layer 3 switch cluster (Routed SMLT) with Virtual Inter-Switch Trunk (vIST)                                                                                           | VSP 4000 | 4.1                |
|                                                                                                                                                                       | VSP 7200 | 4.2.1              |
| For more information, see <i>Configuring Link Aggregation, MLT, SMLT, and vIST</i> .                                                                                  | VSP 8200 | 4.0                |
|                                                                                                                                                                       | VSP 8400 | 4.2                |
| Layer 3 Video Surveillance install script (formerly known as the run vms endura script)<br><br>For more information, see <i>Configuring Fabric Layer 3 Services</i> . | VSP 4000 | 4.1                |
|                                                                                                                                                                       | VSP 7200 | n/a                |
|                                                                                                                                                                       | VSP 8200 | n/a                |
|                                                                                                                                                                       | VSP 8400 | n/a                |
| Layer 3 VSN<br><br>For more information, see <i>Configuring Fabric Layer 3 Services</i> .                                                                             | VSP 4000 | 3.0                |
|                                                                                                                                                                       | VSP 7200 | 4.2.1              |
|                                                                                                                                                                       | VSP 8200 | 4.1                |
|                                                                                                                                                                       | VSP 8400 | 4.2                |
| License files signed using Extreme Networks signature.                                                                                                                | VSP 4000 | 6.1.2              |
|                                                                                                                                                                       | VSP 7200 | 6.1.2              |
|                                                                                                                                                                       | VSP 8200 | 6.1.2              |
|                                                                                                                                                                       | VSP 8400 | 6.1.2              |
| literate-directed-broadcast boot flag ( <code>boot config flags literate-directed-broadcast</code> )<br><br>For more information, see <i>Administering</i> .          | VSP 4000 | 6.1                |
|                                                                                                                                                                       | VSP 7200 | n/a                |
|                                                                                                                                                                       | VSP 8200 | n/a                |
|                                                                                                                                                                       | VSP 8400 | n/a                |
| Link Layer Discovery Protocol (LLDP)<br><br>For more information, see <i>Administering</i> .                                                                          | VSP 4000 | 6.0                |
|                                                                                                                                                                       | VSP 7200 | 6.0                |
|                                                                                                                                                                       | VSP 8200 | 6.0                |
|                                                                                                                                                                       | VSP 8400 | 6.0                |
| LLDP-MED<br><br>For more information, see <i>Administering</i> .                                                                                                      | VSP 4000 | 7.0                |
|                                                                                                                                                                       | VSP 7200 | 7.0                |
|                                                                                                                                                                       | VSP 8200 | 7.0                |
|                                                                                                                                                                       | VSP 8400 | 7.0                |
| Link-state tracking (LST)<br><br>For more information, see <i>Configuring Link Aggregation, MLT, SMLT, and vIST</i> .                                                 | VSP 4000 | 7.0                |
|                                                                                                                                                                       | VSP 7200 | 7.0                |
|                                                                                                                                                                       | VSP 8200 | 7.0                |
|                                                                                                                                                                       | VSP 8400 | 7.0                |
| Linux kernel version 4.9                                                                                                                                              | VSP 4000 | 7.0                |

Table continues...

| Feature                                                                                                                                                                                                                                                                     | Product  | Release introduced   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------------------|
| <p><b>!</b> <b>Important:</b></p> <p>This kernel has special upgrade considerations the first time you upgrade to a release that supports it. You must first upgrade to a stepping-stone release, 6.1.x , <i>before</i> you upgrade to the release with the new kernel.</p> |          | VSP 4450 models only |
|                                                                                                                                                                                                                                                                             | VSP 7200 | 7.0                  |
|                                                                                                                                                                                                                                                                             | VSP 8200 | 7.0                  |
|                                                                                                                                                                                                                                                                             | VSP 8400 | 7.0                  |
| <p>Logging to a file and syslog (IPv4)</p> <p>For more information, see <i>Monitoring Performance</i>.</p>                                                                                                                                                                  | VSP 4000 | 3.0                  |
|                                                                                                                                                                                                                                                                             | VSP 7200 | 4.2.1                |
|                                                                                                                                                                                                                                                                             | VSP 8200 | 4.0                  |
|                                                                                                                                                                                                                                                                             | VSP 8400 | 4.2                  |
| <p>Logging to a file and syslog (IPv6)</p> <p>For more information, see <i>Monitoring Performance</i>.</p>                                                                                                                                                                  | VSP 4000 | 4.1                  |
|                                                                                                                                                                                                                                                                             | VSP 7200 | 4.2.1                |
|                                                                                                                                                                                                                                                                             | VSP 8200 | 4.1                  |
|                                                                                                                                                                                                                                                                             | VSP 8400 | 4.2                  |
| <p>Logon banner</p> <p><b>*</b> <b>Note:</b></p> <p>Releases 6.0 and 6.0.1 do not support this feature.</p> <p>For more information, see <i>Administering</i>.</p>                                                                                                          | VSP 4000 | 5.1.2                |
|                                                                                                                                                                                                                                                                             | VSP 7200 | 5.1.2                |
|                                                                                                                                                                                                                                                                             | VSP 8200 | 5.1.2                |
|                                                                                                                                                                                                                                                                             | VSP 8400 | 5.1.2                |
| <p>MACsec 2AN mode</p> <p><b>*</b> <b>Note:</b></p> <p>VOSS 5.0 officially removes the replay protection commands. Do not use replay protection in earlier releases.</p> <p>For more information, see <i>Configuring Security</i>.</p>                                      | VSP 4000 | 4.0                  |
|                                                                                                                                                                                                                                                                             | VSP 7200 | 4.2.1                |
|                                                                                                                                                                                                                                                                             | VSP 8200 | 4.1                  |
|                                                                                                                                                                                                                                                                             | VSP 8400 | 4.2                  |
| <p>MACsec 4AN mode</p> <p>For more information, see <i>Configuring Security</i>.</p>                                                                                                                                                                                        | VSP 4000 | 6.0                  |
|                                                                                                                                                                                                                                                                             | VSP 7200 | 6.0                  |
|                                                                                                                                                                                                                                                                             | VSP 8200 | 6.0                  |
|                                                                                                                                                                                                                                                                             | VSP 8400 | 6.0                  |
| <p>Mirroring (port and flow-based)</p> <p>For more information, see <i>Troubleshooting</i>.</p>                                                                                                                                                                             | VSP 4000 | 3.0                  |
|                                                                                                                                                                                                                                                                             | VSP 7200 | 4.2.1                |
|                                                                                                                                                                                                                                                                             | VSP 8200 | 4.0                  |
|                                                                                                                                                                                                                                                                             | VSP 8400 | 4.2                  |
| <p>MSTP-Fabric Connect Multi Homing</p> <p>For more information, see <i>Configuring Fabric Basics and Layer 2 Services</i>.</p>                                                                                                                                             | VSP 4000 | 7.0                  |
|                                                                                                                                                                                                                                                                             | VSP 7200 | 7.0                  |
|                                                                                                                                                                                                                                                                             | VSP 8200 | 7.0                  |

Table continues...



| Feature                                                                                                                                         | Product  | Release introduced |
|-------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------------------|
|                                                                                                                                                 | VSP 8400 | 7.0                |
| Multicast Listener Discovery (MLD)<br>For more information, see <i>Configuring IP Multicast Routing Protocols</i> .                             | VSP 4000 | 5.1                |
|                                                                                                                                                 | VSP 7200 | 5.1                |
|                                                                                                                                                 | VSP 8200 | 5.1                |
|                                                                                                                                                 | VSP 8400 | 5.1                |
| Multicast route (mroute) statistics for IPv4 and IPv6<br>For more information, see <i>Configuring IP Multicast Routing Protocols</i> .          | VSP 4000 | n/a                |
|                                                                                                                                                 | VSP 7200 | 5.1                |
|                                                                                                                                                 | VSP 8200 | 5.1                |
|                                                                                                                                                 | VSP 8400 | 5.1                |
| MultiLink Trunking (MLT) / Link Aggregation Group (LAG)<br>For more information, see <i>Configuring Link Aggregation, MLT, SMLT, and vIST</i> . | VSP 4000 | 3.0                |
|                                                                                                                                                 | VSP 7200 | 4.2.1              |
|                                                                                                                                                 | VSP 8200 | 4.0                |
|                                                                                                                                                 | VSP 8400 | 4.2                |
| Multiple CLI users per role<br>For more information, see <i>Administering</i> .                                                                 | VSP 4000 | 7.0                |
|                                                                                                                                                 | VSP 7200 | 7.0                |
|                                                                                                                                                 | VSP 8200 | 7.0                |
|                                                                                                                                                 | VSP 8400 | 7.0                |
| Multiple IS-IS parallel adjacencies<br>For more information, see <i>Configuring Fabric Basics and Layer 2 Services</i> .                        | VSP 4000 | 7.0                |
|                                                                                                                                                 | VSP 7200 | 7.0                |
|                                                                                                                                                 | VSP 8200 | 7.0                |
|                                                                                                                                                 | VSP 8400 | 7.0                |
| Neighbor Discovery Inspection (IPv6)<br>For more information, see <i>Configuring Security</i> .                                                 | VSP 4000 | 5.1                |
|                                                                                                                                                 | VSP 7200 | 5.1                |
|                                                                                                                                                 | VSP 8200 | 5.1                |
|                                                                                                                                                 | VSP 8400 | 5.1                |
| Network Load Balancing (NLB) - multicast operation<br>For more information, see <i>Configuring VLANs, Spanning Tree, and NLB</i> .              | VSP 4000 | n/a                |
|                                                                                                                                                 | VSP 7200 | 6.0                |
|                                                                                                                                                 | VSP 8200 | 6.0                |
|                                                                                                                                                 | VSP 8400 | 6.0                |
| Network Load Balancing (NLB) - unicast operation<br>For more information, see <i>Configuring VLANs, Spanning Tree, and NLB</i> .                | VSP 4000 | n/a                |
|                                                                                                                                                 | VSP 7200 | 4.2.1              |
|                                                                                                                                                 | VSP 8200 | 4.0                |
|                                                                                                                                                 | VSP 8400 | 4.2                |
| NTPv3                                                                                                                                           | VSP 4000 | 3.0                |

Table continues...

| Feature                                                                                                                                                                                                                                                        | Product  | Release introduced |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------------------|
| For more information, see <i>Administering</i> .                                                                                                                                                                                                               | VSP 7200 | 4.2.1              |
|                                                                                                                                                                                                                                                                | VSP 8200 | 4.0                |
|                                                                                                                                                                                                                                                                | VSP 8400 | 4.2                |
| NTPv3 with SHA authentication<br>For more information, see <i>Administering</i> .                                                                                                                                                                              | VSP 4000 | 5.1                |
|                                                                                                                                                                                                                                                                | VSP 7200 | 5.1                |
|                                                                                                                                                                                                                                                                | VSP 8200 | 5.1                |
|                                                                                                                                                                                                                                                                | VSP 8400 | 5.1                |
| NTPv4 for IPv4<br>For more information, see <i>Administering</i> .                                                                                                                                                                                             | VSP 4000 | 7.0                |
|                                                                                                                                                                                                                                                                | VSP 7200 | 7.0                |
|                                                                                                                                                                                                                                                                | VSP 8200 | 7.0                |
|                                                                                                                                                                                                                                                                | VSP 8400 | 7.0                |
| NTPv4 for IPv6<br>For more information, see <i>Administering</i> .                                                                                                                                                                                             | VSP 4000 | 7.0                |
|                                                                                                                                                                                                                                                                | VSP 7200 | 7.0                |
|                                                                                                                                                                                                                                                                | VSP 8200 | 7.0                |
|                                                                                                                                                                                                                                                                | VSP 8400 | 7.0                |
| nni-mstp boot flag ( <code>boot config flags nni-mstp</code> )<br><br><b>!</b> <b>Important:</b><br>This flag has special upgrade considerations the first time you upgrade to a release that supports it.<br>For more information, see <i>Administering</i> . | VSP 4000 | 6.0                |
|                                                                                                                                                                                                                                                                | VSP 7200 | 6.0                |
|                                                                                                                                                                                                                                                                | VSP 8200 | 6.0                |
|                                                                                                                                                                                                                                                                | VSP 8400 | 6.0                |
| Non EAPoL MAC RADIUS authentication<br>For more information, see <i>Configuring Security</i> .                                                                                                                                                                 | VSP 4000 | 4.2.1              |
|                                                                                                                                                                                                                                                                | VSP 7200 | 4.2.1              |
|                                                                                                                                                                                                                                                                | VSP 8200 | 4.2.1              |
|                                                                                                                                                                                                                                                                | VSP 8400 | 4.2.1              |
| Open Shortest Path First (OSPF)<br>For more information, see <i>Configuring OSPF and RIP</i> .                                                                                                                                                                 | VSP 4000 | 3.1                |
|                                                                                                                                                                                                                                                                | VSP 7200 | 4.2.1              |
|                                                                                                                                                                                                                                                                | VSP 8200 | 4.0                |
|                                                                                                                                                                                                                                                                | VSP 8400 | 4.2                |
| OVSDb protocol support for VXLAN Gateway<br>For more information, see <i>Configuring VXLAN Gateway</i> .                                                                                                                                                       | VSP 4000 | n/a                |
|                                                                                                                                                                                                                                                                | VSP 7200 | 7.0 demo only      |
|                                                                                                                                                                                                                                                                | VSP 8200 | 7.0 demo only      |
|                                                                                                                                                                                                                                                                | VSP 8400 | 7.0 demo only      |

Table continues...

| Feature                                                                                                                                                                                                                                           | Product  | Release introduced |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------------------|
| P-Bridge MIB<br>Adds support for: <ul style="list-style-type: none"> <li>• dot1dExtBase Group</li> <li>• dot1dDeviceCapabilities</li> <li>• dot1dTraficClassesEnabled</li> <li>• dot1dGmrpStatus</li> <li>• dot1dPortCapabilitiesTable</li> </ul> | VSP 4000 | 6.1.2              |
|                                                                                                                                                                                                                                                   | VSP 7200 | 6.1.2              |
|                                                                                                                                                                                                                                                   | VSP 8200 | 6.1.2              |
|                                                                                                                                                                                                                                                   | VSP 8400 | 6.1.2              |
| Protocol Independent Multicast-Sparse Mode (PIM-SM), PIM-Source Specific Mode (PIM-SSM) for IPv4<br><br>For more information, see <i>Configuring IP Multicast Routing Protocols</i> .                                                             | VSP 4000 | 4.1                |
|                                                                                                                                                                                                                                                   | VSP 7200 | 4.2.1              |
|                                                                                                                                                                                                                                                   | VSP 8200 | 4.0.1              |
|                                                                                                                                                                                                                                                   | VSP 8400 | 4.2                |
| PIM over IPv6<br><br>For more information, see <i>Configuring IP Multicast Routing Protocols</i> .                                                                                                                                                | VSP 4000 | 5.1                |
|                                                                                                                                                                                                                                                   | VSP 7200 | 5.1                |
|                                                                                                                                                                                                                                                   | VSP 8200 | 5.1                |
|                                                                                                                                                                                                                                                   | VSP 8400 | 5.1                |
| Power Management<br><br>For more information, see <i>Administering</i> .                                                                                                                                                                          | VSP 4000 | n/a                |
|                                                                                                                                                                                                                                                   | VSP 7200 | n/a                |
|                                                                                                                                                                                                                                                   | VSP 8200 | n/a                |
|                                                                                                                                                                                                                                                   | VSP 8400 | n/a                |
| Power over Ethernet (PoE)<br><br>For more information, see <i>Administering</i> .                                                                                                                                                                 | VSP 4000 | 3.0                |
|                                                                                                                                                                                                                                                   | VSP 7200 | n/a                |
|                                                                                                                                                                                                                                                   | VSP 8200 | n/a                |
|                                                                                                                                                                                                                                                   | VSP 8400 | n/a                |
| PoE/PoE+ allocation using LLDP<br><br>For more information, see <i>Administering</i> .                                                                                                                                                            | VSP 4000 | 5.1                |
|                                                                                                                                                                                                                                                   | VSP 7200 | n/a                |
|                                                                                                                                                                                                                                                   | VSP 8200 | n/a                |
|                                                                                                                                                                                                                                                   | VSP 8400 | n/a                |
| QoS Access Control Entries (ACE)<br><br>For more information, see <i>Configuring QoS and ACL-Based Traffic Filtering</i> .                                                                                                                        | VSP 4000 | 3.0                |
|                                                                                                                                                                                                                                                   | VSP 7200 | 4.2.1              |
|                                                                                                                                                                                                                                                   | VSP 8200 | 4.0                |
|                                                                                                                                                                                                                                                   | VSP 8400 | 4.2                |
| QoS ingress port rate limiter<br><br>For more information, see <i>Configuring QoS and ACL-Based Traffic Filtering</i> .                                                                                                                           | VSP 4000 | n/a                |
|                                                                                                                                                                                                                                                   | VSP 7200 | 4.2.1              |
|                                                                                                                                                                                                                                                   | VSP 8200 | 4.0                |
|                                                                                                                                                                                                                                                   | VSP 8400 | 4.2                |

Table continues...



| Feature                                                                                                                                                                                                                                                                | Product  | Release introduced |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------------------|
| QoS per queue rate limiting<br>For more information, see <i>Configuring QoS and ACL-Based Traffic Filtering</i> .                                                                                                                                                      | VSP 4000 | 5.1                |
|                                                                                                                                                                                                                                                                        | VSP 7200 | 5.1.1              |
|                                                                                                                                                                                                                                                                        | VSP 8200 | 5.1.1              |
|                                                                                                                                                                                                                                                                        | VSP 8400 | 5.1.1              |
| QoS Priority Assignment<br>For more information, see <i>Configuring Security</i> .                                                                                                                                                                                     | VSP 4000 | 7.0                |
|                                                                                                                                                                                                                                                                        | VSP 7200 | 7.0                |
|                                                                                                                                                                                                                                                                        | VSP 8200 | 7.0                |
|                                                                                                                                                                                                                                                                        | VSP 8400 | 7.0                |
| RADIUS (IPv6)<br>For more information, see <i>Configuring Security</i> .                                                                                                                                                                                               | VSP 4000 | 4.1                |
|                                                                                                                                                                                                                                                                        | VSP 7200 | 4.2.1              |
|                                                                                                                                                                                                                                                                        | VSP 8200 | 4.1                |
|                                                                                                                                                                                                                                                                        | VSP 8400 | 4.2                |
| RADIUS attributes:<br>• Acct-Terminate-Cause<br>• Event-Timestamp<br>• Service Type<br>For more information, see <i>Configuring Security</i> .                                                                                                                         | VSP 4000 | 7.0                |
|                                                                                                                                                                                                                                                                        | VSP 7200 | 7.0                |
|                                                                                                                                                                                                                                                                        | VSP 8200 | 7.0                |
|                                                                                                                                                                                                                                                                        | VSP 8400 | 7.0                |
| RADIUS, community-based users (IPv4)<br>For more information, see <i>Configuring Security</i> .                                                                                                                                                                        | VSP 4000 | 3.0                |
|                                                                                                                                                                                                                                                                        | VSP 7200 | 4.2.1              |
|                                                                                                                                                                                                                                                                        | VSP 8200 | 4.0                |
|                                                                                                                                                                                                                                                                        | VSP 8400 | 4.2                |
| RADIUS secure communication using IPSec for IPv4<br> <b>Note:</b><br>Releases 6.0 and 6.0.1 do not support this feature.<br>For more information, see <i>Configuring Security</i> . | VSP 4000 | 5.1.2              |
|                                                                                                                                                                                                                                                                        | VSP 7200 | 5.1.2              |
|                                                                                                                                                                                                                                                                        | VSP 8200 | 5.1.2              |
|                                                                                                                                                                                                                                                                        | VSP 8400 | 5.1.2              |
| RADIUS secure communication using IPSec for IPv6<br> <b>Note:</b><br>Releases 6.0 and 6.0.1 do not support this feature.<br>For more information, see <i>Configuring Security</i> . | VSP 4000 | 5.1.2              |
|                                                                                                                                                                                                                                                                        | VSP 7200 | 5.1.2              |
|                                                                                                                                                                                                                                                                        | VSP 8200 | 5.1.2              |
|                                                                                                                                                                                                                                                                        | VSP 8400 | 5.1.2              |
| Read-Only user for EDM<br>For more information, see <i>Using CLI and EDM</i> .                                                                                                                                                                                         | VSP 4000 | 7.0                |
|                                                                                                                                                                                                                                                                        | VSP 7200 | 7.0                |
|                                                                                                                                                                                                                                                                        | VSP 8200 | 7.0                |
|                                                                                                                                                                                                                                                                        | VSP 8400 | 7.0                |
| Remote Login (Rlogin) server/client (IPv4)                                                                                                                                                                                                                             | VSP 4000 | 3.0                |

Table continues...

| Feature                                                                                                                                                                             | Product  | Release introduced |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------------------|
| For more information, see <i>Administering</i> .                                                                                                                                    | VSP 7200 | 4.2.1              |
|                                                                                                                                                                                     | VSP 8200 | 4.0                |
|                                                                                                                                                                                     | VSP 8400 | 4.2                |
| Rlogin server (IPv6)<br>For more information, see <i>Administering</i> .                                                                                                            | VSP 4000 | 4.1                |
|                                                                                                                                                                                     | VSP 7200 | 4.2.1              |
|                                                                                                                                                                                     | VSP 8200 | 4.1                |
|                                                                                                                                                                                     | VSP 8400 | 4.2                |
| Remote Monitoring 1 (RMON1) for Layer 1 and Layer 2<br><br>* <b>Note:</b><br>Release 5.0 and 5.1 do not support RMON1.<br>For more information, see <i>Monitoring Performance</i> . | VSP 4000 | 3.0                |
|                                                                                                                                                                                     | VSP 7200 | 4.2.1              |
|                                                                                                                                                                                     | VSP 8200 | 4.0                |
|                                                                                                                                                                                     | VSP 8400 | 4.2                |
| Remote Monitoring 2 (RMON2) for network and application layer protocols<br>For more information, see <i>Monitoring Performance</i> .                                                | VSP 4000 | 4.2                |
|                                                                                                                                                                                     | VSP 7200 | 4.2.1              |
|                                                                                                                                                                                     | VSP 8200 | 4.2                |
|                                                                                                                                                                                     | VSP 8400 | 4.2                |
| Remote Shell (RSH) server/client<br>For more information, see <i>Administering</i> .                                                                                                | VSP 4000 | 3.0                |
|                                                                                                                                                                                     | VSP 7200 | 4.2.1              |
|                                                                                                                                                                                     | VSP 8200 | 4.0                |
|                                                                                                                                                                                     | VSP 8400 | 4.2                |
| RFC 5176 – Dynamic Authorization Extensions to RADIUS<br>For more information, see <i>Configuring Security</i> .                                                                    | VSP 4000 | 7.0                |
|                                                                                                                                                                                     | VSP 7200 | 7.0                |
|                                                                                                                                                                                     | VSP 8200 | 7.0                |
|                                                                                                                                                                                     | VSP 8400 | 7.0                |
| RFC 5997 – RADIUS Reachability Server Status<br>For more information, see <i>Configuring Security</i> .                                                                             | VSP 4000 | 7.0                |
|                                                                                                                                                                                     | VSP 7200 | 7.0                |
|                                                                                                                                                                                     | VSP 8200 | 7.0                |
|                                                                                                                                                                                     | VSP 8400 | 7.0                |
| Route Information Protocol (RIP)<br>For more information, see <i>Configuring OSPF and RIP</i> .                                                                                     | VSP 4000 | 3.1                |
|                                                                                                                                                                                     | VSP 7200 | 4.2.1              |
|                                                                                                                                                                                     | VSP 8200 | 4.0                |
|                                                                                                                                                                                     | VSP 8400 | 4.2                |
| Route metric for BGP route redistribution<br>For more information, see <i>Configuring BGP Services</i> .                                                                            | VSP 4000 | 6.1                |
|                                                                                                                                                                                     | VSP 7200 | 6.1                |
|                                                                                                                                                                                     | VSP 8200 | 6.1                |

Table continues...

| Feature                                                                                                                                   | Product  | Release introduced |
|-------------------------------------------------------------------------------------------------------------------------------------------|----------|--------------------|
|                                                                                                                                           | VSP 8400 | 6.1                |
| RIPng<br>For more information, see <i>Configuring IPv6 Routing</i> .                                                                      | VSP 4000 | 5.0                |
|                                                                                                                                           | VSP 7200 | 5.0                |
|                                                                                                                                           | VSP 8200 | 5.0                |
|                                                                                                                                           | VSP 8400 | 5.0                |
| run spbm installation script<br>For more information, see <i>Configuring Fabric Basics and Layer 2 Services</i> .                         | VSP 4000 | 4.1                |
|                                                                                                                                           | VSP 7200 | 4.2.1              |
|                                                                                                                                           | VSP 8200 | 4.1                |
|                                                                                                                                           | VSP 8400 | 4.2                |
| Russia summer time zone change<br>For more information, see <i>Administering</i> .                                                        | VSP 4000 | 4.2                |
|                                                                                                                                           | VSP 7200 | 4.2.1              |
|                                                                                                                                           | VSP 8200 | 4.2                |
|                                                                                                                                           | VSP 8400 | 4.2                |
| Secure Copy (SCP)<br><b>* Note:</b><br>The switch does not support the WinSCP client.<br>For more information, see <i>Administering</i> . | VSP 4000 | 3.0                |
|                                                                                                                                           | VSP 7200 | 5.0                |
|                                                                                                                                           | VSP 8200 | 4.0                |
|                                                                                                                                           | VSP 8400 | 5.0                |
| Secure hash algorithm 1 (SHA-1) and SHA-2<br>For more information, see <i>Configuring OSPF and RIP</i> .                                  | VSP 4000 | 4.2                |
|                                                                                                                                           | VSP 7200 | 4.2.1              |
|                                                                                                                                           | VSP 8200 | 4.2                |
|                                                                                                                                           | VSP 8400 | 4.2                |
| Secure Shell (SSH) (IPv4)<br>For more information, see <i>Administering</i> .                                                             | VSP 4000 | 3.0                |
|                                                                                                                                           | VSP 7200 | 4.2.1              |
|                                                                                                                                           | VSP 8200 | 4.0                |
|                                                                                                                                           | VSP 8400 | 4.2                |
| Secure Sockets Layer (SSL) certificate management<br>For more information, see <i>Administering</i> .                                     | VSP 4000 | 4.1                |
|                                                                                                                                           | VSP 7200 | 4.2.1              |
|                                                                                                                                           | VSP 8200 | 4.1                |
|                                                                                                                                           | VSP 8400 | 4.2                |
| Security ACEs<br>For more information, see <i>Configuring QoS and ACL-Based Traffic Filtering</i> .                                       | VSP 4000 | 3.0                |
|                                                                                                                                           | VSP 7200 | 4.2.1              |
|                                                                                                                                           | VSP 8200 | 4.0                |
|                                                                                                                                           | VSP 8400 | 4.2                |
| Segmented Management Instance                                                                                                             | VSP 4000 | 7.0                |

Table continues...

| Feature                                                                                                                            | Product  | Release introduced                |
|------------------------------------------------------------------------------------------------------------------------------------|----------|-----------------------------------|
| For more information, see <i>Administering</i> .                                                                                   |          | VSP 4850 models support IPv4 only |
|                                                                                                                                    | VSP 7200 | 7.0                               |
|                                                                                                                                    | VSP 8200 | 7.0                               |
|                                                                                                                                    | VSP 8400 | 7.0                               |
| Segmented Management Instance — ability to migrate VLAN or loopback IP address<br>For more information, see <i>Administering</i> . | VSP 4000 | n/a                               |
|                                                                                                                                    | VSP 7200 | n/a                               |
|                                                                                                                                    | VSP 8200 | n/a                               |
|                                                                                                                                    | VSP 8400 | n/a                               |
| sFlow<br>For more information, see <i>Monitoring Performance</i> .                                                                 | VSP 4000 | 6.0                               |
|                                                                                                                                    | VSP 7200 | 6.0                               |
|                                                                                                                                    | VSP 8200 | 6.0                               |
|                                                                                                                                    | VSP 8400 | 6.0                               |
| Simple Loop Prevention Protocol (SLPP)<br>For more information, see <i>Configuring VLANs, Spanning Tree, and NLB</i> .             | VSP 4000 | 3.0                               |
|                                                                                                                                    | VSP 7200 | 4.2.1                             |
|                                                                                                                                    | VSP 8200 | 4.0                               |
|                                                                                                                                    | VSP 8400 | 4.2                               |
| Simple Mail Transfer Protocol (SMTP) for log notification<br>For more information, see <i>Monitoring Performance</i> .             | VSP 4000 | 6.0                               |
|                                                                                                                                    | VSP 7200 | 6.0                               |
|                                                                                                                                    | VSP 8200 | 6.0                               |
|                                                                                                                                    | VSP 8400 | 6.0                               |
| Simple Network Management Protocol (SNMP) v1/2/3 (IPv4)<br>For more information, see <i>Configuring Security</i> .                 | VSP 4000 | 3.0                               |
|                                                                                                                                    | VSP 7200 | 4.2.1                             |
|                                                                                                                                    | VSP 8200 | 4.0                               |
|                                                                                                                                    | VSP 8400 | 4.2                               |
| SLA Mon<br>For more information, see <i>Configuring the SLA Mon Agent</i> .                                                        | VSP 4000 | 4.1                               |
|                                                                                                                                    | VSP 7200 | 6.0                               |
|                                                                                                                                    | VSP 8200 | 4.1                               |
|                                                                                                                                    | VSP 8400 | 4.2                               |
| SLPP Guard<br>For more information, see <i>Configuring Link Aggregation, MLT, SMLT, and vIST</i> .                                 | VSP 4000 | 6.1                               |
|                                                                                                                                    | VSP 7200 | 6.1                               |
|                                                                                                                                    | VSP 8200 | 6.1                               |
|                                                                                                                                    | VSP 8400 | 6.1                               |
| SNMP (IPv6)<br>For more information, see <i>Configuring Security</i> .                                                             | VSP 4000 | 4.1                               |
|                                                                                                                                    | VSP 7200 | 4.2.1                             |

Table continues...

| Feature                                                                                                                                                      | Product  | Release introduced |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------------------|
|                                                                                                                                                              | VSP 8200 | 4.1                |
|                                                                                                                                                              | VSP 8400 | 4.2                |
| SoNMP<br>For more information, see <i>Administering</i> .                                                                                                    | VSP 4000 | 3.0                |
|                                                                                                                                                              | VSP 7200 | 4.2.1              |
|                                                                                                                                                              | VSP 8200 | 4.0                |
|                                                                                                                                                              | VSP 8400 | 4.2                |
| Spanning Tree Protocol (STP):<br>• Multiple STP (MSTP)<br>• Rapid STP (RSTP)<br>For more information, see <i>Configuring VLANs, Spanning Tree, and NLB</i> . | VSP 4000 | 3.0                |
|                                                                                                                                                              | VSP 7200 | 4.2.1              |
|                                                                                                                                                              | VSP 8200 | 4.0                |
|                                                                                                                                                              | VSP 8400 | 4.2                |
| spbm-config-mode (boot config flags spbm-config-mode)<br>For more information, see <i>Configuring IP Multicast Routing Protocols</i> .                       | VSP 4000 | 4.1                |
|                                                                                                                                                              | VSP 7200 | 4.2.1              |
|                                                                                                                                                              | VSP 8200 | 4.0.1              |
|                                                                                                                                                              | VSP 8400 | 4.2                |
| SPB-PIM Gateway controller node<br>For more information see <i>Configuring Fabric Multicast Services</i> .                                                   | VSP 4000 | 6.0                |
|                                                                                                                                                              | VSP 7200 | 6.0                |
|                                                                                                                                                              | VSP 8200 | 6.0                |
|                                                                                                                                                              | VSP 8400 | 6.0                |
| SPB-PIM Gateway interface<br>For more information see <i>Configuring Fabric Multicast Services</i> .                                                         | VSP 4000 | 6.0                |
|                                                                                                                                                              | VSP 7200 | 6.0                |
|                                                                                                                                                              | VSP 8200 | 6.0                |
|                                                                                                                                                              | VSP 8400 | 6.0                |
| SSH (IPv6)<br>For more information, see <i>Administering</i> .                                                                                               | VSP 4000 | 4.1                |
|                                                                                                                                                              | VSP 7200 | 4.2.1              |
|                                                                                                                                                              | VSP 8200 | 4.1                |
|                                                                                                                                                              | VSP 8400 | 4.2                |
| SSH client disable<br>For more information, see <i>Administering</i> .                                                                                       | VSP 4000 | 6.0                |
|                                                                                                                                                              | VSP 7200 | 6.0                |
|                                                                                                                                                              | VSP 8200 | 6.0                |
|                                                                                                                                                              | VSP 8400 | 6.0                |
| SSH key size<br><b>* Note:</b><br>Releases 6.0 and 6.0.1 do not support this feature.                                                                        | VSP 4000 | 5.1.2              |
|                                                                                                                                                              | VSP 7200 | 5.1.2              |
|                                                                                                                                                              | VSP 8200 | 5.1.2              |
|                                                                                                                                                              | VSP 8400 | 5.1.2              |

Table continues...




| Feature                                                                                                                                                                                                                                                                 | Product  | Release introduced |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------------------|
| For more information, see <i>Administering</i> .                                                                                                                                                                                                                        |          |                    |
| SSH rekey<br>For more information, see <i>Administering</i> .                                                                                                                                                                                                           | VSP 4000 | 5.1                |
|                                                                                                                                                                                                                                                                         | VSP 7200 | 5.1                |
|                                                                                                                                                                                                                                                                         | VSP 8200 | 5.1                |
|                                                                                                                                                                                                                                                                         | VSP 8400 | 5.1                |
| Static routing<br>For more information, see <i>Configuring IPv4 Routing</i> .                                                                                                                                                                                           | VSP 4000 | 3.0                |
|                                                                                                                                                                                                                                                                         | VSP 7200 | 4.2.1              |
|                                                                                                                                                                                                                                                                         | VSP 8200 | 4.0                |
|                                                                                                                                                                                                                                                                         | VSP 8400 | 4.2                |
| Suspend duplicate system ID detection<br>For more information, see <i>Configuring Fabric Connect Basics and Layer 2 Services</i> .                                                                                                                                      | VSP 4000 | 6.1                |
|                                                                                                                                                                                                                                                                         | VSP 7200 | 6.1                |
|                                                                                                                                                                                                                                                                         | VSP 8200 | 6.1                |
|                                                                                                                                                                                                                                                                         | VSP 8400 | 6.1                |
| Switch cluster (multi-chassis LAG) -Virtual Inter-Switch Trunk (vIST)<br>For more information, see <i>Configuring Link Aggregation, MLT, SMLT, and vIST</i> .                                                                                                           | VSP 4000 | 4.1                |
|                                                                                                                                                                                                                                                                         | VSP 7200 | 4.2.1              |
|                                                                                                                                                                                                                                                                         | VSP 8200 | 4.0                |
|                                                                                                                                                                                                                                                                         | VSP 8400 | 4.2                |
| Switched UNI<br>For more information, see <i>Configuring Fabric Basics and Layer 2 Services</i> .                                                                                                                                                                       | VSP 4000 | 5.0                |
|                                                                                                                                                                                                                                                                         | VSP 7200 | 5.0                |
|                                                                                                                                                                                                                                                                         | VSP 8200 | 5.0                |
|                                                                                                                                                                                                                                                                         | VSP 8400 | 5.0                |
| System Logging compliance with RFC 5424 and RFC 3339                                                                                                                                                                                                                    | VSP 4000 | 6.1.2              |
|                                                                                                                                                                                                                                                                         | VSP 7200 | 6.1.2              |
|                                                                                                                                                                                                                                                                         | VSP 8200 | 6.1.2              |
|                                                                                                                                                                                                                                                                         | VSP 8400 | 6.1.2              |
| TACACS+<br>For more information, see <i>Configuring Security</i> .                                                                                                                                                                                                      | VSP 4000 | 4.0                |
|                                                                                                                                                                                                                                                                         | VSP 7200 | 4.2.1              |
|                                                                                                                                                                                                                                                                         | VSP 8200 | 4.1                |
|                                                                                                                                                                                                                                                                         | VSP 8400 | 4.2                |
| TACACS+ secure communication using IPSec for IPv4<br> <b>Note:</b><br>Releases 6.0 and 6.0.1 do not support this feature.<br>For more information, see <i>Configuring Security</i> . | VSP 4000 | 5.1.2              |
|                                                                                                                                                                                                                                                                         | VSP 7200 | 5.1.2              |
|                                                                                                                                                                                                                                                                         | VSP 8200 | 5.1.2              |
|                                                                                                                                                                                                                                                                         | VSP 8400 | 5.1.2              |
| Telnet server and client (IPv4)                                                                                                                                                                                                                                         | VSP 4000 | 3.0                |

Table continues...

| Feature                                                                                                                                                          | Product  | Release introduced |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------------------|
| For more information, see <i>Administering</i> .                                                                                                                 | VSP 7200 | 4.2.1              |
|                                                                                                                                                                  | VSP 8200 | 4.0                |
|                                                                                                                                                                  | VSP 8400 | 4.2                |
| Telnet server and client (IPv6)<br>For more information, see <i>Administering</i> .                                                                              | VSP 4000 | 4.1                |
|                                                                                                                                                                  | VSP 7200 | 4.2.1              |
|                                                                                                                                                                  | VSP 8200 | 4.1                |
|                                                                                                                                                                  | VSP 8400 | 4.2                |
| TLS server for secure HTTPS<br><br>* <b>Note:</b><br>Releases 6.0 and 6.0.1 do not support this feature.<br>For more information, see <i>Using CLI and EDM</i> . | VSP 4000 | 5.1.2              |
|                                                                                                                                                                  | VSP 7200 | 5.1.2              |
|                                                                                                                                                                  | VSP 8200 | 5.1.2              |
|                                                                                                                                                                  | VSP 8400 | 5.1.2              |
| TLS client for secure syslog<br><br>* <b>Note:</b><br>Releases 6.0 and 6.0.1 do not support this feature.<br>For more information, see <i>Troubleshooting</i> .  | VSP 4000 | 5.1.2              |
|                                                                                                                                                                  | VSP 7200 | 5.1.2              |
|                                                                                                                                                                  | VSP 8200 | 5.1.2              |
|                                                                                                                                                                  | VSP 8400 | 5.1.2              |
| Transparent Port UNI (T-UNI)<br>lease<br>For more information, see <i>Configuring Fabric Basics and Layer 2 Services</i> .                                       | VSP 4000 | 3.1                |
|                                                                                                                                                                  | VSP 7200 | 4.2.1              |
|                                                                                                                                                                  | VSP 8200 | 4.2.1              |
|                                                                                                                                                                  | VSP 8400 | 4.2.1              |
| Trivial File Transfer Protocol (TFTP) server and client (IPv4)<br>For more information, see <i>Administering</i> .                                               | VSP 4000 | 3.0                |
|                                                                                                                                                                  | VSP 7200 | 4.2.1              |
|                                                                                                                                                                  | VSP 8200 | 4.0                |
|                                                                                                                                                                  | VSP 8400 | 4.2                |
| TFTP server and client (IPv6)<br>For more information, see <i>Administering</i> .                                                                                | VSP 4000 | 4.1                |
|                                                                                                                                                                  | VSP 7200 | 4.2.1              |
|                                                                                                                                                                  | VSP 8200 | 4.1                |
|                                                                                                                                                                  | VSP 8400 | 4.2                |
| Unicast Reverse Path Forwarding (URPF) checking (IPv4 and IPv6)<br>For more information, see <i>Configuring Security</i> .                                       | VSP 4000 | 5.0                |
|                                                                                                                                                                  | VSP 7200 | 5.0                |
|                                                                                                                                                                  | VSP 8200 | 5.0                |
|                                                                                                                                                                  | VSP 8400 | 5.0                |
| Virtual Link Aggregation Control Protocol (VLACP)                                                                                                                | VSP 4000 | 3.0                |

Table continues...

| Feature                                                                                                                                                                                                                                                                                                                                                                                                      | Product  | Release introduced          |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-----------------------------|
| For more information, see <i>Configuring Link Aggregation, MLT, SMLT, and vIST</i> .                                                                                                                                                                                                                                                                                                                         | VSP 7200 | 4.2.1                       |
|                                                                                                                                                                                                                                                                                                                                                                                                              | VSP 8200 | 4.0                         |
|                                                                                                                                                                                                                                                                                                                                                                                                              | VSP 8400 | 4.2                         |
| Virtual Router Redundancy Protocol (VRRP)<br>For more information, see <i>Configuring IPv4 Routing</i> .                                                                                                                                                                                                                                                                                                     | VSP 4000 | 3.0                         |
|                                                                                                                                                                                                                                                                                                                                                                                                              | VSP 7200 | 4.2.1                       |
|                                                                                                                                                                                                                                                                                                                                                                                                              | VSP 8200 | 4.0                         |
|                                                                                                                                                                                                                                                                                                                                                                                                              | VSP 8400 | 4.2                         |
| Virtualization with IPv4 Virtual Routing and Forwarding (VRF)<br><ul style="list-style-type: none"> <li>• ARP</li> <li>• DHCP Relay</li> <li>• Inter-VRF Routing (static, dynamic, and policy)</li> <li>• Local routing</li> <li>• OSPFv2</li> <li>• RIPv1 and v2</li> <li>• Route policies</li> <li>• Static routing</li> <li>• VRRP</li> </ul> For more information, see <i>Configuring IPv4 Routing</i> . | VSP 4000 | 3.0                         |
|                                                                                                                                                                                                                                                                                                                                                                                                              | VSP 7200 | 4.2.1                       |
|                                                                                                                                                                                                                                                                                                                                                                                                              | VSP 8200 | 4.0                         |
|                                                                                                                                                                                                                                                                                                                                                                                                              | VSP 8400 | 4.2                         |
|                                                                                                                                                                                                                                                                                                                                                                                                              |          |                             |
| Increased VRF and Layer 3 VSN scaling<br>For more information, see <i>Configuring IPv4 Routing</i> .                                                                                                                                                                                                                                                                                                         | VSP 4000 | 6.0                         |
|                                                                                                                                                                                                                                                                                                                                                                                                              | VSP 7200 | 6.0                         |
|                                                                                                                                                                                                                                                                                                                                                                                                              | VSP 8200 | 6.0                         |
|                                                                                                                                                                                                                                                                                                                                                                                                              | VSP 8400 | 6.0                         |
| VRRPv3 for IPv4 and IPv6<br>For more information, see <i>Configuring IPv4 Routing and Configuring IPv6 Routing</i> .                                                                                                                                                                                                                                                                                         | VSP 4000 | 5.1                         |
|                                                                                                                                                                                                                                                                                                                                                                                                              | VSP 7200 | 5.1                         |
|                                                                                                                                                                                                                                                                                                                                                                                                              | VSP 8200 | 5.1                         |
|                                                                                                                                                                                                                                                                                                                                                                                                              | VSP 8400 | 5.1                         |
| VXLAN Gateway<br>For more information, see <i>Configuring VXLAN Gateway</i> .                                                                                                                                                                                                                                                                                                                                | VSP 4000 | n/a                         |
|                                                                                                                                                                                                                                                                                                                                                                                                              | VSP 7200 | 6.0                         |
|                                                                                                                                                                                                                                                                                                                                                                                                              | VSP 8200 | 6.0                         |
|                                                                                                                                                                                                                                                                                                                                                                                                              | VSP 8400 | 6.0                         |
| Zero Touch Fabric configuration<br>For more information, see <i>Configuring Fabric Basics and Layer 2 Services</i> .                                                                                                                                                                                                                                                                                         | VSP 4000 | 7.0<br>VSP 4450 models only |
|                                                                                                                                                                                                                                                                                                                                                                                                              | VSP 7200 | 7.0                         |
|                                                                                                                                                                                                                                                                                                                                                                                                              | VSP 8200 | 7.0                         |
|                                                                                                                                                                                                                                                                                                                                                                                                              | VSP 8400 | 7.0                         |

## MIB Changes

### Deprecated MIBs

| Object Name                 | Object OID                      | Deprecated in VOSS Release |
|-----------------------------|---------------------------------|----------------------------|
| rcVlanIpsecEnable           | 1.3.6.1.4.1.2272.1.3.2.1.64     | 6.1                        |
| rcChasFanTable              | 1.3.6.1.4.1.2272.1.4.7.1        | 7.0                        |
| rcChasFanEntry              | 1.3.6.1.4.1.2272.1.4.7.1.1      | 7.0                        |
| rcChasFanId                 | 1.3.6.1.4.1.2272.1.4.7.1.1.1    | 7.0                        |
| rcChasFanOperStatus         | 1.3.6.1.4.1.2272.1.4.7.1.1.2    | 7.0                        |
| rcChasFanAmbientTemperature | 1.3.6.1.4.1.2272.1.4.7.1.1.3    | 7.0                        |
| rcChasFanType               | 1.3.6.1.4.1.2272.1.4.7.1.1.4    | 7.0                        |
| rcPortIpsecEnable           | 1.3.6.1.4.1.2272.1.4.10.1.1.113 | 6.1                        |
| rcChasLedTable              | 1.3.6.1.4.1.2272.1.4.65.1       | 7.0                        |
| rcChasLedEntry              | 1.3.6.1.4.1.2272.1.4.65.1.1     | 7.0                        |
| rcChasLedId                 | 1.3.6.1.4.1.2272.1.4.65.1.1.1   | 7.0                        |
| rcChasLedLabel              | 1.3.6.1.4.1.2272.1.4.65.1.1.2   | 7.0                        |
| rcChasLedStatus             | 1.3.6.1.4.1.2272.1.4.65.1.1.3   | 7.0                        |

### Modified MIBs

| Object Name                             | Object OID                                | Modified in VOSS Release |
|-----------------------------------------|-------------------------------------------|--------------------------|
| rc2kBootConfigEnableFactoryDefaultsMode | 1.3.6.1.4.1.2272.1.100.5.1.60             | 7.0                      |
| rcEapPortMultiHostMaxClients            | 1.3.6.1.4.1.2272.1.57.2.1.5               | 7.0                      |
| rcEapPortNonEapMaxClients               | 1.3.6.1.4.1.2272.1.57.2.1.7               | 7.0                      |
| rcIpv6IcmpErrorInterval                 | 1.3.6.1.4.1.2272.1.62.1.1.1.1             | 7.0                      |
| RclsisAdjEntry                          | 1.3.6.1.4.1.2272.1.63.10.1                | 7.0                      |
| RclsisCircuitEntry                      | 1.3.6.1.4.1.2272.1.63.2.1                 | 7.0                      |
| rcNtpKeyId                              | 1.3.6.1.4.1.2272.1.33.3.1.1               | 7.0                      |
| rc2kQosQueueProfileId                   | -                                         | 7.0                      |
| rcPrFilterAclAceListSize                | 1.3.6.1.4.1.2272.1.202.1.1.2.3.1.1.5      | 7.0                      |
| rcPrFilterAclControlPktRule             | 1.3.6.1.4.1.2272.1.202.1.1.2.3.1.1.1<br>4 | 7.0                      |

Table continues...

| Object Name                           | Object OID                            | Modified in VOSS Release |
|---------------------------------------|---------------------------------------|--------------------------|
| rcPrFilterAclDefaultAction            | 1.3.6.1.4.1.2272.1.202.1.1.2.3.1.1.6  | 7.0                      |
| rcPrFilterAclDstPortList              | 1.3.6.1.4.1.2272.1.202.1.1.2.3.1.1.17 | 7.0                      |
| RcPrFilterAclEntry                    | 1.3.6.1.4.1.2272.1.202.1.1.2.3.1.1    | 7.0                      |
| rcPrFilterAclId                       | 1.3.6.1.4.1.2272.1.202.1.1.2.3.1.1.1  | 7.0                      |
| rcPrFilterAclIpfIxState               | 1.3.6.1.4.1.2272.1.202.1.1.2.3.1.1.18 | 7.0                      |
| rcPrFilterAclIsid                     | 1.3.6.1.4.1.2272.1.202.1.1.2.3.1.1.20 | 7.0                      |
| rcPrFilterAclMatchType                | 1.3.6.1.4.1.2272.1.202.1.1.2.3.1.1.19 | 7.0                      |
| rcPrFilterAclMltId                    | 1.3.6.1.4.1.2272.1.202.1.1.2.3.1.1.16 | 7.0                      |
| rcPrFilterAclName                     | 1.3.6.1.4.1.2272.1.202.1.1.2.3.1.1.3  | 7.0                      |
| rcPrFilterAclNumVlanIds               | 1.3.6.1.4.1.2272.1.202.1.1.2.3.1.1.12 | 7.0                      |
| rcPrFilterAclPktType                  | 1.3.6.1.4.1.2272.1.202.1.1.2.3.1.1.13 | 7.0                      |
| rcPrFilterAclPortList                 | 1.3.6.1.4.1.2272.1.202.1.1.2.3.1.1.10 | 7.0                      |
| rcPrFilterAclRowStatus                | 1.3.6.1.4.1.2272.1.202.1.1.2.3.1.1.11 | 7.0                      |
| rcPrFilterAclState                    | 1.3.6.1.4.1.2272.1.202.1.1.2.3.1.1.8  | 7.0                      |
| rcPrFilterAclType                     | 1.3.6.1.4.1.2272.1.202.1.1.2.3.1.1.4  | 7.0                      |
| rcPrFilterAclVlanId                   | 1.3.6.1.4.1.2272.1.202.1.1.2.3.1.1.15 | 7.0                      |
| rcPrFilterAclVlanList                 | 1.3.6.1.4.1.2272.1.202.1.1.2.3.1.1.9  | 7.0                      |
| rc2kQosQueuePId                       | -                                     | 7.0                      |
| rcIpBgpExtPeerAfAdvertisementInterval | -                                     | 7.0                      |
| rcRadiusReachability                  | 1.3.6.1.4.1.2272.1.29.1.20            | 7.0                      |
| rcRadiusServHostTimeOut               | 1.3.6.1.4.1.2272.1.29.5.1.5           | 7.0                      |
| rcVxlanVnidAction                     | 1.3.6.1.4.1.2272.1.218.4.1.4          | 7.0                      |
| rcVxlanVnidEntry                      | 1.3.6.1.4.1.2272.1.218.4.1            | 7.0                      |
| rcVxlanVnidIdentifier                 | 1.3.6.1.4.1.2272.1.218.4.1.1          | 7.0                      |
| rcVxlanVnidIsid                       | 1.3.6.1.4.1.2272.1.218.4.1.2          | 7.0                      |
| rcVxlanVnidOvsdbConfigured            | 1.3.6.1.4.1.2272.1.218.4.1.5          | 7.0                      |
| rcVxlanVnidRowStatus                  | 1.3.6.1.4.1.2272.1.218.4.1.3          | 7.0                      |

*Table continues...*

| Object Name                | Object OID                   | Modified in VOSS Release |
|----------------------------|------------------------------|--------------------------|
| rcVxlanVtepEntry           | 1.3.6.1.4.1.2272.1.218.3.1   | 7.0                      |
| rcVxlanVtepId              | 1.3.6.1.4.1.2272.1.218.3.1.1 | 7.0                      |
| rcVxlanVtepIpAddr          | 1.3.6.1.4.1.2272.1.218.3.1.2 | 7.0                      |
| rcVxlanVtepName            | 1.3.6.1.4.1.2272.1.218.3.1.3 | 7.0                      |
| rcVxlanVtepNextHopVrfName  | 1.3.6.1.4.1.2272.1.218.3.1.5 | 7.0                      |
| rcVxlanVtepOvsdbConfigured | 1.3.6.1.4.1.2272.1.218.3.1.6 | 7.0                      |
| rcVxlanVtepRowStatus       | 1.3.6.1.4.1.2272.1.218.3.1.4 | 7.0                      |

## New MIBs

| Object Name                    | Object OID                 | New in VOSS Release |
|--------------------------------|----------------------------|---------------------|
| dot1VlanCurrentTable           | 1.3.6.1.2.1.17.7.1.4.2     | 6.1.2               |
| dot1qVlanStaticTable           | 1.3.6.1.2.1.17.7.1.4.3     | 6.1.2               |
| dot1qPortVlanTable             | 1.3.6.1.2.1.17.7.1.4.5     | 6.1.2               |
| dot1dBasePortEntry             | 1.3.6.1.2.1.17.1.4         | 6.1.2               |
| dot1qVlanNumDelete             | 1.3.6.1.2.1.17.7.1.4.1     | 6.1.2               |
| dot1dExtBase                   | 1.3.6.1.2.1.17.6.1.1       | 6.1.2               |
| dot1dDeviceCapabilities        | 1.3.6.1.2.1.17.6.1.1.1     | 6.1.2               |
| dot1dTrafficClassesEnabled     | 1.3.6.1.2.1.17.6.1.1.2     | 6.1.2               |
| dot1dGmrpStatus                | 1.3.6.1.2.1.17.6.1.1.3     | 6.1.2               |
| dot1dPortCapabilitiesTable     | 1.3.6.1.2.1.17.6.1.1.4     | 6.1.2               |
| dot1dPortCapabilitiesEntry     | 1.3.6.1.2.1.17.6.1.1.4.1   | 6.1.2               |
| dot1dPortCapabilities          | 1.3.6.1.2.1.17.6.1.1.4.1.1 | 6.1.2               |
| entPhysicalIndex               | 1.3.6.1.2.1.47.1.1.1.1.1   | 6.1.2               |
| entAliasLogicalIndexOrZero     | 1.3.6.1.2.1.47.1.3.2.1.1   | 6.1.2               |
| entAliasMappingIdentifier      | 1.3.6.1.2.1.47.1.3.2.1.2   | 6.1.2               |
| entPhysicalChildIndex          | 1.3.6.1.2.1.47.1.3.3.1.1   | 6.1.2               |
| entLastChangeTime              | 1.3.6.1.2.1.47.1.4.1       | 6.1.2               |
| bayStackLinkStateTrackingMib   | 1.3.6.1.4.1.45.5.43        | 7.0                 |
| bayStackNesMib                 | 1.3.6.1.4.1.45.5.34        | 7.0                 |
| bayStackNesNotificationObjects | 1.3.6.1.4.1.45.5.34.2      | 7.0                 |
| bayStackNesNotifications       | 1.3.6.1.4.1.45.5.34.0      | 7.0                 |
| bayStackNesObjects             | 1.3.6.1.4.1.45.5.34.1      | 7.0                 |

*Table continues...*

| Object Name                        | Object OID                  | New in VOSS Release |
|------------------------------------|-----------------------------|---------------------|
| bsLstGroupDownstreamMltList        | 1.3.6.1.4.1.45.5.43.1.2.1.6 | 7.0                 |
| bsLstGroupDownstreamPortList       | 1.3.6.1.4.1.45.5.43.1.2.1.4 | 7.0                 |
| bsLstGroupEnabled                  | 1.3.6.1.4.1.45.5.43.1.2.1.2 | 7.0                 |
| bsLstGroupEntry                    | 1.3.6.1.4.1.45.5.43.1.2.1   | 7.0                 |
| bsLstGroupIndex                    | 1.3.6.1.4.1.45.5.43.1.2.1.1 | 7.0                 |
| bsLstGroupOperState                | 1.3.6.1.4.1.45.5.43.1.2.1.7 | 7.0                 |
| bsLstGroupOperStateChanged         | 1.3.6.1.4.1.45.5.43.0.2     | 7.0                 |
| bsLstGroupTable                    | 1.3.6.1.4.1.45.5.43.1.2     | 7.0                 |
| bsLstGroupUpstreamMltList          | 1.3.6.1.4.1.45.5.43.1.2.1.5 | 7.0                 |
| bsLstGroupUpstreamPortList         | 1.3.6.1.4.1.45.5.43.1.2.1.3 | 7.0                 |
| bsLstInterfaceStatus               | 1.3.6.1.4.1.45.5.43.1.3.1   | 7.0                 |
| bsLstInterfaceStatusChanged        | 1.3.6.1.4.1.45.5.43.0.1     | 7.0                 |
| bsLstNotifications                 | 1.3.6.1.4.1.45.5.43.0       | 7.0                 |
| bsLstNotifObjects                  | 1.3.6.1.4.1.45.5.43.1.3     | 7.0                 |
| bsLstObjects                       | 1.3.6.1.4.1.45.5.43.1       | 7.0                 |
| bsLstScalars                       | 1.3.6.1.4.1.45.5.43.1.1     | 7.0                 |
| bsnesActivated                     | 1.3.6.1.4.1.45.5.34.0.7     | 7.0                 |
| bsnesDeactivated                   | 1.3.6.1.4.1.45.5.34.0.8     | 7.0                 |
| bsnesEfficiencyModeEnabled         | 1.3.6.1.4.1.45.5.34.1.1.3   | 7.0                 |
| bsnesEnergySaverActive             | 1.3.6.1.4.1.45.5.34.1.1.4   | 7.0                 |
| bsnesEnergySaverEnabled            | 1.3.6.1.4.1.45.5.34.1.1.1   | 7.0                 |
| bsnesGloballyDisabled              | 1.3.6.1.4.1.45.5.34.0.2     | 7.0                 |
| bsnesGloballyEnabled               | 1.3.6.1.4.1.45.5.34.0.1     | 7.0                 |
| bsnesInterfaceEnergySaverEnabled   | 1.3.6.1.4.1.45.5.34.1.3.1.2 | 7.0                 |
| bsnesInterfaceEnergySaverPoeStatus | 1.3.6.1.4.1.45.5.34.1.3.1.3 | 7.0                 |
| bsnesInterfaceEntry                | 1.3.6.1.4.1.45.5.34.1.3.1   | 7.0                 |
| bsnesInterfaceIndex                | 1.3.6.1.4.1.45.5.34.1.3.1.1 | 7.0                 |
| bsnesInterfaceTable                | 1.3.6.1.4.1.45.5.34.1.3     | 7.0                 |
| bsnesManuallyActivated             | 1.3.6.1.4.1.45.5.34.0.3     | 7.0                 |
| bsnesManuallyDeactivated           | 1.3.6.1.4.1.45.5.34.0.4     | 7.0                 |
| bsnesPoePowerSavingEnabled         | 1.3.6.1.4.1.45.5.34.1.1.2   | 7.0                 |
| bsnesSavingsEntry                  | 1.3.6.1.4.1.45.5.34.1.4.1   | 7.0                 |
| bsnesSavingsPoeSavings             | 1.3.6.1.4.1.45.5.34.1.4.1.3 | 7.0                 |
| bsnesSavingsTable                  | 1.3.6.1.4.1.45.5.34.1.4     | 7.0                 |
| bsnesSavingsUnitIndex              | 1.3.6.1.4.1.45.5.34.1.4.1.1 | 7.0                 |

*Table continues...*

Related Information

| Object Name                   | Object OID                            | New in VOSS Release |
|-------------------------------|---------------------------------------|---------------------|
| bsnesSavingsUnitSavings       | 1.3.6.1.4.1.45.5.34.1.4.1.2           | 7.0                 |
| bsnesScalars                  | 1.3.6.1.4.1.45.5.34.1.1               | 7.0                 |
| bsnesScheduleAction           | 1.3.6.1.4.1.45.5.34.1.2.1.4           | 7.0                 |
| bsnesScheduleApplied          | 1.3.6.1.4.1.45.5.34.0.6               | 7.0                 |
| bsnesScheduleDay              | 1.3.6.1.4.1.45.5.34.1.2.1.1           | 7.0                 |
| bsnesScheduleEntry            | 1.3.6.1.4.1.45.5.34.1.2.1             | 7.0                 |
| bsnesScheduleHour             | 1.3.6.1.4.1.45.5.34.1.2.1.2           | 7.0                 |
| bsnesScheduleMinute           | 1.3.6.1.4.1.45.5.34.1.2.1.3           | 7.0                 |
| bsnesScheduleNotApplied       | 1.3.6.1.4.1.45.5.34.0.5               | 7.0                 |
| bsnesScheduleRowStatus        | 1.3.6.1.4.1.45.5.34.1.2.1.5           | 7.0                 |
| bsnesScheduleTable            | 1.3.6.1.4.1.45.5.34.1.2               | 7.0                 |
| lldpRemIndex                  | 1.0.8802.1.1.2.1.4.1.1.3              | 7.0                 |
| lldpRemLocalPortNum           | 1.0.8802.1.1.2.1.4.1.1.2              | 7.0                 |
| lldpXMedCompliance            | 1.0.8802.1.1.2.1.5.4795.2.1.1         | 7.0                 |
| lldpXMedCompliances           | 1.0.8802.1.1.2.1.5.4795.2.1           | 7.0                 |
| lldpXMedConfig                | 1.0.8802.1.1.2.1.5.4795.1.1           | 7.0                 |
| lldpXMedConfigGroup           | 1.0.8802.1.1.2.1.5.4795.2.2.1         | 7.0                 |
| lldpXMedConformance           | 1.0.8802.1.1.2.1.5.4795.2             | 7.0                 |
| LldpXMedDeviceClass           | 1.0.8802.1.1.2.1.5.4795.1.1.1         | 7.0                 |
| lldpXMedFastStartRepeatCount  | 1.0.8802.1.1.2.1.5.4795.1.1.3         | 7.0                 |
| lldpXMedGroups                | 1.0.8802.1.1.2.1.5.4795.2.2           | 7.0                 |
| lldpXMedLocalData             | 1.0.8802.1.1.2.1.5.4795.1.2           | 7.0                 |
| lldpXMedLocAssetID            | 1.0.8802.1.1.2.1.5.4795.1.2.8         | 7.0                 |
| lldpXMedLocDeviceClass        | 1.0.8802.1.1.2.1.5.4795.1.1.1         | 7.0                 |
| lldpXMedLocFirmwareRev        | 1.0.8802.1.1.2.1.5.4795.1.2.3         | 7.0                 |
| lldpXMedLocHardwareRev        | 1.0.8802.1.1.2.1.5.4795.1.2.2         | 7.0                 |
| lldpXMedLocLocationEntry      | 1.0.8802.1.1.2.1.5.4795.1.2.9<br>.1   | 7.0                 |
| lldpXMedLocLocationInfo       | 1.0.8802.1.1.2.1.5.4795.1.2.9<br>.1.2 | 7.0                 |
| lldpXMedLocLocationSubtype    | 1.0.8802.1.1.2.1.5.4795.1.2.9<br>.1.1 | 7.0                 |
| lldpXMedLocLocationTable      | 1.0.8802.1.1.2.1.5.4795.1.2.9         | 7.0                 |
| lldpXMedLocMediaPolicyAppType | 1.0.8802.1.1.2.1.5.4795.1.2.1<br>.1.1 | 7.0                 |

*Table continues...*



| Object Name                      | Object OID                          | New in VOSS Release |
|----------------------------------|-------------------------------------|---------------------|
| lldpXMedLocMediaPolicyDscp       | 1.0.8802.1.1.2.1.5.4795.1.2.1.1.4   | 7.0                 |
| lldpXMedLocMediaPolicyEntry      | 1.0.8802.1.1.2.1.5.4795.1.2.1.1     | 7.0                 |
| lldpXMedLocMediaPolicyPriority   | 1.0.8802.1.1.2.1.5.4795.1.2.1.1.3   | 7.0                 |
| lldpXMedLocMediaPolicyTable      | 1.0.8802.1.1.2.1.5.4795.1.2.1       | 7.0                 |
| lldpXMedLocMediaPolicyTagged     | 1.0.8802.1.1.2.1.5.4795.1.2.1.1.6   | 7.0                 |
| lldpXMedLocMediaPolicyUnknown    | 1.0.8802.1.1.2.1.5.4795.1.2.1.1.5   | 7.0                 |
| lldpXMedLocMediaPolicyVlanID     | 1.0.8802.1.1.2.1.5.4795.1.2.1.1.2   | 7.0                 |
| lldpXMedLocMfgName               | 1.0.8802.1.1.2.1.5.4795.1.2.6       | 7.0                 |
| lldpXMedLocModelName             | 1.0.8802.1.1.2.1.5.4795.1.2.7       | 7.0                 |
| lldpXMedLocSerialNum             | 1.0.8802.1.1.2.1.5.4795.1.2.5       | 7.0                 |
| lldpXMedLocSoftwareRev           | 1.0.8802.1.1.2.1.5.4795.1.2.4       | 7.0                 |
| lldpXMedLocXPoEDeviceType        | 1.0.8802.1.1.2.1.5.4795.1.2.1.0     | 7.0                 |
| lldpXMedLocXPoEPDPPowerPriority  | 1.0.8802.1.1.2.1.5.4795.1.2.1.5     | 7.0                 |
| lldpXMedLocXPoEPDPPowerReq       | 1.0.8802.1.1.2.1.5.4795.1.2.1.3     | 7.0                 |
| lldpXMedLocXPoEPDPPowerSource    | 1.0.8802.1.1.2.1.5.4795.1.2.1.4     | 7.0                 |
| lldpXMedLocXPoEPSEPortEntry      | 1.0.8802.1.1.2.1.5.4795.1.2.1.1.1   | 7.0                 |
| lldpXMedLocXPoEPSEPortPDPriority | 1.0.8802.1.1.2.1.5.4795.1.2.1.1.1.2 | 7.0                 |
| lldpXMedLocXPoEPSEPortPowerAv    | 1.0.8802.1.1.2.1.5.4795.1.2.1.1.1.1 | 7.0                 |
| lldpXMedLocXPoEPSEPortTable      | 1.0.8802.1.1.2.1.5.4795.1.2.1.1     | 7.0                 |
| lldpXMedLocXPoEPSEPowerSource    | 1.0.8802.1.1.2.1.5.4795.1.2.1.2     | 7.0                 |
| lldpXMedMIB                      | 1.0.8802.1.1.2.1.5.4795             | 7.0                 |
| lldpXMedNotifications            | 1.0.8802.1.1.2.1.5.4795.0           | 7.0                 |
| lldpXMedNotificationsGroup       | 1.0.8802.1.1.2.1.5.4795.2.2.8       | 7.0                 |
| lldpXMedObjects                  | 1.0.8802.1.1.2.1.5.4795.1           | 7.0                 |

*Table continues...*

| Object Name                    | Object OID                            | New in VOSS Release |
|--------------------------------|---------------------------------------|---------------------|
| lldpXMedOptInventoryGroup      | 1.0.8802.1.1.2.1.5.4795.2.2.3         | 7.0                 |
| lldpXMedOptLocationGroup       | 1.0.8802.1.1.2.1.5.4795.2.2.4         | 7.0                 |
| lldpXMedOptMediaPolicyGroup    | 1.0.8802.1.1.2.1.5.4795.2.2.2         | 7.0                 |
| lldpXMedOptPoEPDGroup          | 1.0.8802.1.1.2.1.5.4795.2.2.6         | 7.0                 |
| lldpXMedOptPoEPSEGroup         | 1.0.8802.1.1.2.1.5.4795.2.2.5         | 7.0                 |
| lldpXMedPortCapSupported       | 1.0.8802.1.1.2.1.5.4795.1.1.2<br>.1.1 | 7.0                 |
| lldpXMedPortConfigEntry        | 1.0.8802.1.1.2.1.5.4795.1.1.2<br>.1   | 7.0                 |
| lldpXMedPortConfigNotifEnable  | 1.0.8802.1.1.2.1.5.4795.1.1.2<br>.1.3 | 7.0                 |
| lldpXMedPortConfigTable        | 1.0.8802.1.1.2.1.5.4795.1.1.2         | 7.0                 |
| lldpXMedPortConfigTLVsTxEnable | 1.0.8802.1.1.2.1.5.4795.1.1.2<br>.1.2 | 7.0                 |
| lldpXMedRemAssetID             | 1.0.8802.1.1.2.1.5.4795.1.3.3<br>.1.7 | 7.0                 |
| lldpXMedRemCapabilitiesEntry   | 1.0.8802.1.1.2.1.5.4795.1.3.1<br>.1   | 7.0                 |
| lldpXMedRemCapabilitiesTable   | 1.0.8802.1.1.2.1.5.4795.1.3.1         | 7.0                 |
| lldpXMedRemCapCurrent          | 1.0.8802.1.1.2.1.5.4795.1.3.1<br>.1.2 | 7.0                 |
| lldpXMedRemCapSupported        | 1.0.8802.1.1.2.1.5.4795.1.3.1<br>.1.1 | 7.0                 |
| lldpXMedRemDeviceClass         | 1.0.8802.1.1.2.1.5.4795.1.3.1<br>.1.3 | 7.0                 |
| lldpXMedRemFirmwareRev         | 1.0.8802.1.1.2.1.5.4795.1.3.3<br>.1.2 | 7.0                 |
| lldpXMedRemHardwareRev         | 1.0.8802.1.1.2.1.5.4795.1.3.3<br>.1.1 | 7.0                 |
| lldpXMedRemInventoryEntry      | 1.0.8802.1.1.2.1.5.4795.1.3.3<br>.1   | 7.0                 |
| lldpXMedRemInventoryTable      | 1.0.8802.1.1.2.1.5.4795.1.3.3         | 7.0                 |
| lldpXMedRemLocationEntry       | 1.0.8802.1.1.2.1.5.4795.1.3.4<br>.1   | 7.0                 |
| lldpXMedRemLocationInfo        | 1.0.8802.1.1.2.1.5.4795.1.3.4<br>.1.2 | 7.0                 |
| lldpXMedRemLocationSubtype     | 1.0.8802.1.1.2.1.5.4795.1.3.4<br>.1.1 | 7.0                 |
| lldpXMedRemLocationTable       | 1.0.8802.1.1.2.1.5.4795.1.3.4         | 7.0                 |

Table continues...

| Object Name                    | Object OID                        | New in VOSS Release |
|--------------------------------|-----------------------------------|---------------------|
| IldpXMedRemMediaPolicyAppType  | 1.0.8802.1.1.2.1.5.4795.1.3.2.1.1 | 7.0                 |
| IldpXMedRemMediaPolicyDscp     | 1.0.8802.1.1.2.1.5.4795.1.3.2.1.4 | 7.0                 |
| IldpXMedRemMediaPolicyEntry    | 1.0.8802.1.1.2.1.5.4795.1.3.2.1   | 7.0                 |
| IldpXMedRemMediaPolicyPriority | 1.0.8802.1.1.2.1.5.4795.1.3.2.1.3 | 7.0                 |
| IldpXMedRemMediaPolicyTable    | 1.0.8802.1.1.2.1.5.4795.1.3.2     | 7.0                 |
| IldpXMedRemMediaPolicyTagged   | 1.0.8802.1.1.2.1.5.4795.1.3.2.1.6 | 7.0                 |
| IldpXMedRemMediaPolicyUnknown  | 1.0.8802.1.1.2.1.5.4795.1.3.2.1.5 | 7.0                 |
| IldpXMedRemMediaPolicyVlanID   | 1.0.8802.1.1.2.1.5.4795.1.3.2.1.2 | 7.0                 |
| IldpXMedRemMfgName             | 1.0.8802.1.1.2.1.5.4795.1.3.3.1.5 | 7.0                 |
| IldpXMedRemModelName           | 1.0.8802.1.1.2.1.5.4795.1.3.3.1.6 | 7.0                 |
| IldpXMedRemoteData             | 1.0.8802.1.1.2.1.5.4795.1.3       | 7.0                 |
| IldpXMedRemSerialNum           | 1.0.8802.1.1.2.1.5.4795.1.3.3.1.4 | 7.0                 |
| IldpXMedRemSoftwareRev         | 1.0.8802.1.1.2.1.5.4795.1.3.3.1.3 | 7.0                 |
| IldpXMedRemSysGroup            | 1.0.8802.1.1.2.1.5.4795.2.2.7     | 7.0                 |
| IldpXMedRemXPoEDeviceType      | 1.0.8802.1.1.2.1.5.4795.1.3.5.1.1 | 7.0                 |
| IldpXMedRemXPoEEntry           | 1.0.8802.1.1.2.1.5.4795.1.3.5.1   | 7.0                 |
| IldpXMedRemXPoEPDEntry         | 1.0.8802.1.1.2.1.5.4795.1.3.7.1   | 7.0                 |
| IldpXMedRemXPoEPDPowerPriority | 1.0.8802.1.1.2.1.5.4795.1.3.7.1.3 | 7.0                 |
| IldpXMedRemXPoEPDPowerReq      | 1.0.8802.1.1.2.1.5.4795.1.3.7.1.1 | 7.0                 |
| IldpXMedRemXPoEPDPowerSource   | 1.0.8802.1.1.2.1.5.4795.1.3.7.1.2 | 7.0                 |
| IldpXMedRemXPoEPDTable         | 1.0.8802.1.1.2.1.5.4795.1.3.7     | 7.0                 |

*Table continues...*

Related Information

| Object Name                                | Object OID                        | New in VOSS Release |
|--------------------------------------------|-----------------------------------|---------------------|
| lldpXMedRemXPoEPSEEntry                    | 1.0.8802.1.1.2.1.5.4795.1.3.6.1   | 7.0                 |
| lldpXMedRemXPoEPSEPowerAv                  | 1.0.8802.1.1.2.1.5.4795.1.3.6.1.1 | 7.0                 |
| lldpXMedRemXPoEPSEPowerPriority            | 1.0.8802.1.1.2.1.5.4795.1.3.6.1.3 | 7.0                 |
| lldpXMedRemXPoEPSEPowerSource              | 1.0.8802.1.1.2.1.5.4795.1.3.6.1.2 | 7.0                 |
| lldpXMedRemXPoEPSETable                    | 1.0.8802.1.1.2.1.5.4795.1.3.6     | 7.0                 |
| lldpXMedRemXPoETable                       | 1.0.8802.1.1.2.1.5.4795.1.3.5     | 7.0                 |
| lldpXMedTopologyChangeDetected             | 1.0.8802.1.1.2.1.5.4795.0.1       | 7.0                 |
| radiusAuthServerMIBCompliance              | 1.3.6.1.2.1.146.2.1.1             | 7.0                 |
| radiusDynAuthClientAddress                 | 1.3.6.1.2.1.146.1.2.1.3           | 7.0                 |
| radiusDynAuthClientAddressType             | 1.3.6.1.2.1.146.1.2.1.2           | 7.0                 |
| radiusDynAuthClientEntry                   | 1.3.6.1.2.1.146.1.2.1             | 7.0                 |
| radiusDynAuthClientIndex                   | 1.3.6.1.2.1.146.1.2.1.1           | 7.0                 |
| radiusDynAuthClientTable                   | 1.3.6.1.2.1.146.1.2               | 7.0                 |
| radiusDynAuthServCoAAcks                   | 1.3.6.1.2.1.146.1.2.1.18          | 7.0                 |
| radiusDynAuthServCoAAAuthOnlyRequests      | 1.3.6.1.2.1.146.1.2.1.16          | 7.0                 |
| radiusDynAuthServCoABadAuthenticators      | 1.3.6.1.2.1.146.1.2.1.24          | 7.0                 |
| radiusDynAuthServCoANakAuthOnlyRequests    | 1.3.6.1.2.1.146.1.2.1.20          | 7.0                 |
| radiusDynAuthServCoANaks                   | 1.3.6.1.2.1.146.1.2.1.19          | 7.0                 |
| radiusDynAuthServCoANakSessNoContext       | 1.3.6.1.2.1.146.1.2.1.21          | 7.0                 |
| radiusDynAuthServCoAPacketsDropped         | 1.3.6.1.2.1.146.1.2.1.25          | 7.0                 |
| radiusDynAuthServCoARequests               | 1.3.6.1.2.1.146.1.2.1.15          | 7.0                 |
| radiusDynAuthServCoAUserSessChanged        | 1.3.6.1.2.1.146.1.2.1.22          | 7.0                 |
| radiusDynAuthServDisconAcks                | 1.3.6.1.2.1.146.1.2.1.7           | 7.0                 |
| radiusDynAuthServDisconAuthOnlyRequests    | 1.3.6.1.2.1.146.1.2.1.5           | 7.0                 |
| radiusDynAuthServDisconBadAuthenticators   | 1.3.6.1.2.1.146.1.2.1.13          | 7.0                 |
| radiusDynAuthServDisconNakAuthOnlyRequests | 1.3.6.1.2.1.146.1.2.1.9           | 7.0                 |
| radiusDynAuthServDisconNaks                | 1.3.6.1.2.1.146.1.2.1.8           | 7.0                 |
| radiusDynAuthServDisconNakSessNoContext    | 1.3.6.1.2.1.146.1.2.1.10          | 7.0                 |
| radiusDynAuthServDisconPacketsDropped      | 1.3.6.1.2.1.146.1.2.1.14          | 7.0                 |
| radiusDynAuthServDisconRequests            | 1.3.6.1.2.1.146.1.2.1.4           | 7.0                 |
| radiusDynAuthServDisconUserSessRemoved     | 1.3.6.1.2.1.146.1.2.1.11          | 7.0                 |
| radiusDynAuthServDupCoARequests            | 1.3.6.1.2.1.146.1.2.1.17          | 7.0                 |

Table continues...

| Object Name                                     | Object OID                    | New in VOSS Release |
|-------------------------------------------------|-------------------------------|---------------------|
| radiusDynAuthServDupDisconRequests              | 1.3.6.1.2.1.146.1.2.1.6       | 7.0                 |
| radiusDynAuthServerAuthOnlyGroup                | 1.3.6.1.2.1.146.2.2.2         | 7.0                 |
| radiusDynAuthServerCoAInvalidClientAddresses    | 1.3.6.1.2.1.146.1.1.2         | 7.0                 |
| radiusDynAuthServerCounterDiscontinuity         | 1.3.6.1.2.1.146.1.2.1.27      | 7.0                 |
| radiusDynAuthServerDisconInvalidClientAddresses | 1.3.6.1.2.1.146.1.1.1         | 7.0                 |
| radiusDynAuthServerIdentifier                   | 1.3.6.1.2.1.146.1.1.3         | 7.0                 |
| radiusDynAuthServerMIB                          | 1.3.6.1.2.1.146               | 7.0                 |
| radiusDynAuthServerMIBCompliances               | 1.3.6.1.2.1.146.2.1           | 7.0                 |
| radiusDynAuthServerMIBConformance               | 1.3.6.1.2.1.146.2             | 7.0                 |
| radiusDynAuthServerMIBGroup                     | 1.3.6.1.2.1.146.2.2.1         | 7.0                 |
| radiusDynAuthServerMIBGroups                    | 1.3.6.1.2.1.146.2.2           | 7.0                 |
| radiusDynAuthServerMIBObjects                   | 1.3.6.1.2.1.146.1             | 7.0                 |
| radiusDynAuthServerNoSessGroup                  | 1.3.6.1.2.1.146.2.2.3         | 7.0                 |
| radiusDynAuthServerScalars                      | 1.3.6.1.2.1.146.1.1           | 7.0                 |
| radiusDynAuthServMalformedCoARequests           | 1.3.6.1.2.1.146.1.2.1.23      | 7.0                 |
| radiusDynAuthServMalformedDisconRequests        | 1.3.6.1.2.1.146.1.2.1.12      | 7.0                 |
| radiusDynAuthServUnknownTypes                   | 1.3.6.1.2.1.146.1.2.1.26      | 7.0                 |
| rc2kBootConfigEnableIpv6EgressFilterMode        | 1.3.6.1.4.1.2272.1.100.5.1.58 | 7.0                 |
| rc2kBootConfigEnableSyslogRfc5424Format         | 1.3.6.1.4.1.2272.1.100.5.1.59 | 6.1.2               |
| rcCliUserEnable                                 | 1.3.6.1.4.1.2272.1.19.50.1.5  | 7.0                 |
| rcCliUserEntry                                  | 1.3.6.1.4.1.2272.1.19.50.1    | 7.0                 |
| rcCliUserId                                     | 1.3.6.1.4.1.2272.1.19.50.1.1  | 7.0                 |
| rcCliUserLevel                                  | 1.3.6.1.4.1.2272.1.19.50.1.4  | 7.0                 |
| rcCliUserName                                   | 1.3.6.1.4.1.2272.1.19.50.1.2  | 7.0                 |
| rcCliUserPassword                               | 1.3.6.1.4.1.2272.1.19.50.1.3  | 7.0                 |
| rcCliUserRowStatus                              | 1.3.6.1.4.1.2272.1.19.50.1.7  | 7.0                 |
| rcCliUserTable                                  | 1.3.6.1.4.1.2272.1.19.50      | 7.0                 |
| rcCliUserType                                   | 1.3.6.1.4.1.2272.1.19.50.1.6  | 7.0                 |
| rcEapMultiHostStatusPriority                    | 1.3.6.1.4.1.2272.1.57.4.1.6   | 7.0                 |
| rclsisAdjParallelActive                         | 1.3.6.1.4.1.2272.1.63.10.1.5  | 7.0                 |
| rclsisCircuitAutoNniEnable                      | 1.3.6.1.4.1.2272.1.63.2.1.11  | 7.0                 |
| rclsisDynamicallyLearnedArea                    | 1.3.6.1.4.1.2272.1.63.1.24    | 7.0                 |
| rclsisFanMember                                 | 1.3.6.1.4.1.2272.1.63.1.23    | 7.0                 |
| rcnIsisPlsblsisEnabledWithZeroNicknameTrap      | 1.3.6.1.4.1.2272.1.21.0.351   | 7.0                 |
| rcNlsMgmtAddressEntry                           | 1.3.6.1.4.1.2272.1.223.2.1    | 7.0                 |

*Table continues...*

Related Information

| Object Name                     | Object OID                   | New in VOSS Release |
|---------------------------------|------------------------------|---------------------|
| rcNisMgmtAddressTable           | 1.3.6.1.4.1.2272.1.223.2     | 7.0                 |
| rcNisMgmtAddrInstancelid        | 1.3.6.1.4.1.2272.1.223.2.1.1 | 7.0                 |
| rcNisMgmtInstancelid            | 1.3.6.1.4.1.2272.1.223.1.1.1 | 7.0                 |
| rcNisMgmtInterfaceEntry         | 1.3.6.1.4.1.2272.1.223.1.1   | 7.0                 |
| rcNisMgmtInterfaceMacAddr       | 1.3.6.1.4.1.2272.1.223.1.1.8 | 7.0                 |
| rcNisMgmtInterfaceName          | 1.3.6.1.4.1.2272.1.223.1.1.9 | 7.0                 |
| rcNisMgmtInterfaceTable         | 1.3.6.1.4.1.2272.1.223.1     | 7.0                 |
| rcNisMgmtInterfaceType          | 1.3.6.1.4.1.2272.1.223.1.1.2 | 7.0                 |
| rcNisMgmtIntfName               | 1.3.6.1.4.1.2272.1.223.2.1.7 | 7.0                 |
| rcNisMgmtIpAddress              | 1.3.6.1.4.1.2272.1.223.2.1.2 | 7.0                 |
| rcNisMgmtIpArpEntry             | 1.3.6.1.4.1.2272.1.223.3.1   | 7.0                 |
| rcNisMgmtIpArpTable             | 1.3.6.1.4.1.2272.1.223.3     | 7.0                 |
| rcNisMgmtIpMask                 | 1.3.6.1.4.1.2272.1.223.2.1.3 | 7.0                 |
| rcNisMgmtIpRouteDestAddr        | 1.3.6.1.4.1.2272.1.223.8.1.1 | 7.0                 |
| rcNisMgmtIpRouteDestMask        | 1.3.6.1.4.1.2272.1.223.8.1.2 | 7.0                 |
| rcNisMgmtIpRouteEntry           | 1.3.6.1.4.1.2272.1.223.8.1   | 7.0                 |
| rcNisMgmtIpRouteInstance        | 1.3.6.1.4.1.2272.1.223.8.1.4 | 7.0                 |
| rcNisMgmtIpRouteIntfName        | 1.3.6.1.4.1.2272.1.223.8.1.6 | 7.0                 |
| rcNisMgmtIpRouteMetric          | 1.3.6.1.4.1.2272.1.223.8.1.3 | 7.0                 |
| rcNisMgmtIpRouteNextHop         | 1.3.6.1.4.1.2272.1.223.8.1.5 | 7.0                 |
| rcNisMgmtIpRouteTable           | 1.3.6.1.4.1.2272.1.223.8     | 7.0                 |
| rcNisMgmtIpRouteType            | 1.3.6.1.4.1.2272.1.223.8.1.7 | 7.0                 |
| rcNisMgmtIpStaticRouteDestAddr  | 1.3.6.1.4.1.2272.1.223.5.1.2 | 7.0                 |
| rcNisMgmtIpStaticRouteDestMask  | 1.3.6.1.4.1.2272.1.223.5.1.3 | 7.0                 |
| rcNisMgmtIpStaticRouteEntry     | 1.3.6.1.4.1.2272.1.223.5.1   | 7.0                 |
| rcNisMgmtIpStaticRouteInstance  | 1.3.6.1.4.1.2272.1.223.5.1.1 | 7.0                 |
| rcNisMgmtIpStaticRouteIntfName  | 1.3.6.1.4.1.2272.1.223.5.1.6 | 7.0                 |
| rcNisMgmtIpStaticRouteMetric    | 1.3.6.1.4.1.2272.1.223.5.1.7 | 7.0                 |
| rcNisMgmtIpStaticRouteNextHop   | 1.3.6.1.4.1.2272.1.223.5.1.5 | 7.0                 |
| rcNisMgmtIpStaticRouteRowStatus | 1.3.6.1.4.1.2272.1.223.5.1.4 | 7.0                 |
| rcNisMgmtIpStaticRouteState     | 1.3.6.1.4.1.2272.1.223.5.1.8 | 7.0                 |
| rcNisMgmtIpStaticRouteTable     | 1.3.6.1.4.1.2272.1.223.5     | 7.0                 |
| rcNisMgmtIpv6Address            | 1.3.6.1.4.1.2272.1.223.2.1.4 | 7.0                 |
| rcNisMgmtIpv6LinkLocalAddr      | 1.3.6.1.4.1.2272.1.223.2.1.6 | 7.0                 |
| rcNisMgmtIpv6NeighborAddr       | 1.3.6.1.4.1.2272.1.223.4.1.1 | 7.0                 |

*Table continues...*

| Object Name                           | Object OID                    | New in VOSS Release |
|---------------------------------------|-------------------------------|---------------------|
| rcNIsMgmtIpv6NeighborEntry            | 1.3.6.1.4.1.2272.1.223.4.1    | 7.0                 |
| rcNIsMgmtIpv6neighborInstance         | 1.3.6.1.4.1.2272.1.223.4.1.2  | 7.0                 |
| rcNIsMgmtIpv6NeighborIntfName         | 1.3.6.1.4.1.2272.1.223.4.1.3  | 7.0                 |
| rcNIsMgmtIpv6NeighborMacAddr          | 1.3.6.1.4.1.2272.1.223.4.1.4  | 7.0                 |
| rcNIsMgmtIpv6NeighborState            | 1.3.6.1.4.1.2272.1.223.4.1.5  | 7.0                 |
| rcNIsMgmtIpv6NeighborTable            | 1.3.6.1.4.1.2272.1.223.4      | 7.0                 |
| rcNIsMgmtIpv6PrefixLength             | 1.3.6.1.4.1.2272.1.223.2.1.5  | 7.0                 |
| rcNIsMgmtIpv6RouteDestAddr            | 1.3.6.1.4.1.2272.1.223.9.1.1  | 7.0                 |
| rcNIsMgmtIpv6RouteDestPrefixLen       | 1.3.6.1.4.1.2272.1.223.9.1.2  | 7.0                 |
| rcNIsMgmtIpv6RouteEntry               | 1.3.6.1.4.1.2272.1.223.9.1    | 7.0                 |
| rcNIsMgmtIpv6RouteInstance            | 1.3.6.1.4.1.2272.1.223.9.1.4  | 7.0                 |
| rcNIsMgmtIpv6RouteIntfName            | 1.3.6.1.4.1.2272.1.223.9.1.6  | 7.0                 |
| rcNIsMgmtIpv6RouteMetric              | 1.3.6.1.4.1.2272.1.223.9.1.3  | 7.0                 |
| rcNIsMgmtIpv6RouteNextHop             | 1.3.6.1.4.1.2272.1.223.9.1.5  | 7.0                 |
| rcNIsMgmtIpv6RouteTable               | 1.3.6.1.4.1.2272.1.223.9      | 7.0                 |
| rcNIsMgmtIpv6RouteType                | 1.3.6.1.4.1.2272.1.223.9.1.7  | 7.0                 |
| rcNIsMgmtIpv6StaticRouteDestAddr      | 1.3.6.1.4.1.2272.1.223.6.1.2  | 7.0                 |
| rcNIsMgmtIpv6StaticRouteDestPrefixLen | 1.3.6.1.4.1.2272.1.223.6.1.3  | 7.0                 |
| rcNIsMgmtIpv6StaticRouteEntry         | 1.3.6.1.4.1.2272.1.223.6.1    | 7.0                 |
| rcNIsMgmtIpv6StaticRouteInstance      | 1.3.6.1.4.1.2272.1.223.6.1.1  | 7.0                 |
| rcNIsMgmtIpv6StaticRouteIntfName      | 1.3.6.1.4.1.2272.1.223.6.1.6  | 7.0                 |
| rcNIsMgmtIpv6StaticRouteMetric        | 1.3.6.1.4.1.2272.1.223.6.1.7  | 7.0                 |
| rcNIsMgmtIpv6StaticRouteNextHop       | 1.3.6.1.4.1.2272.1.223.6.1.5  | 7.0                 |
| rcNIsMgmtIpv6StaticRouteRowStatus     | 1.3.6.1.4.1.2272.1.223.6.1.4  | 7.0                 |
| rcNIsMgmtIpv6StaticRouteState         | 1.3.6.1.4.1.2272.1.223.6.1.8  | 7.0                 |
| rcNIsMgmtIpv6StaticRouteTable         | 1.3.6.1.4.1.2272.1.223.6      | 7.0                 |
| RcNIsMgmtMigrateEntry                 | 1.3.6.1.4.1.2272.1.223.10.1   | 7.0                 |
| rcNIsMgmtMigrateInstanceld            | 1.3.6.1.4.1.2272.1.223.10.1.1 | 7.0                 |
| rcNIsMgmtMigrateInterfaceIndex        | 1.3.6.1.4.1.2272.1.223.10.1.2 | 7.0                 |
| rcNIsMgmtMigrateInterfaceType         | 1.3.6.1.4.1.2272.1.223.10.1.3 | 7.0                 |
| rcNIsMgmtMigrateDescription           | 1.3.6.1.4.1.2272.1.223.10.1.4 | 7.0                 |
| rcNIsMgmtMigrateRowStatus             | 1.3.6.1.4.1.2272.1.223.10.1.5 | 7.0                 |
| rcNIsMgmtMigrateVlanId                | 1.3.6.1.4.1.2272.1.223.10.1.6 | 7.0                 |
| rcNIsMgmtMigrateLoopbackId            | 1.3.6.1.4.1.2272.1.223.10.1.7 | 7.0                 |

Table continues...

Related Information

| Object Name                      | Object OID                     | New in VOSS Release |
|----------------------------------|--------------------------------|---------------------|
| rcNlsMgmtMigrateVrfName          | 1.3.6.1.4.1.2272.1.223.10.1.8  | 7.0                 |
| rcNlsMgmtMigrateIpAddress        | 1.3.6.1.4.1.2272.1.223.10.1.9  | 7.0                 |
| rcNlsMgmtMigrateIpMask           | 1.3.6.1.4.1.2272.1.223.10.1.10 | 7.0                 |
| rcNlsMgmtMigrateIpv6Address      | 1.3.6.1.4.1.2272.1.223.10.1.11 | 7.0                 |
| rcNlsMgmtMigrateIpv6PrefixLength | 1.3.6.1.4.1.2272.1.223.10.1.12 | 7.0                 |
| rcNlsMgmtNetAddress              | 1.3.6.1.4.1.2272.1.223.3.1.1   | 7.0                 |
| rcNlsMgmtNetInstance             | 1.3.6.1.4.1.2272.1.223.3.1.2   | 7.0                 |
| rcNlsMgmtNetIntfName             | 1.3.6.1.4.1.2272.1.223.3.1.3   | 7.0                 |
| rcNlsMgmtNetMacAddr              | 1.3.6.1.4.1.2272.1.223.3.1.4   | 7.0                 |
| rcNlsMgmtNetState                | 1.3.6.1.4.1.2272.1.223.3.1.5   | 7.0                 |
| rcNlsMgmtOOBIndex                | 1.3.6.1.4.1.2272.1.223.1.1.5   | 7.0                 |
| rcNlsMgmtRowStatus               | 1.3.6.1.4.1.2272.1.223.1.1.3   | 7.0                 |
| rcNlsMgmtState                   | 1.3.6.1.4.1.2272.1.223.1.1.7   | 7.0                 |
| rcNlsMgmtStatsEntry              | 1.3.6.1.4.1.2272.1.223.7.1     | 7.0                 |
| rcNlsMgmtStatsInstance           | 1.3.6.1.4.1.2272.1.223.7.1.1   | 7.0                 |
| rcNlsMgmtStatsIntfName           | 1.3.6.1.4.1.2272.1.223.7.1.2   | 7.0                 |
| rcNlsMgmtStatsRxDrop             | 1.3.6.1.4.1.2272.1.223.7.1.5   | 7.0                 |
| rcNlsMgmtStatsRxEror             | 1.3.6.1.4.1.2272.1.223.7.1.4   | 7.0                 |
| rcNlsMgmtStatsRxBkts             | 1.3.6.1.4.1.2272.1.223.7.1.3   | 7.0                 |
| rcNlsMgmtStatsTable              | 1.3.6.1.4.1.2272.1.223.7       | 7.0                 |
| rcNlsMgmtStatsTxDrop             | 1.3.6.1.4.1.2272.1.223.7.1.8   | 7.0                 |
| rcNlsMgmtStatsTxError            | 1.3.6.1.4.1.2272.1.223.7.1.7   | 7.0                 |
| rcNlsMgmtStatsTxPkts             | 1.3.6.1.4.1.2272.1.223.7.1.6   | 7.0                 |
| rcNlsMgmtVlanId                  | 1.3.6.1.4.1.2272.1.223.1.1.4   | 7.0                 |
| rcNlsMgmtVrfName                 | 1.3.6.1.4.1.2272.1.223.1.1.6   | 7.0                 |
| rcNtpv4GlobalInterval            | 1.3.6.1.4.1.2272.1.33.4        | 7.0                 |
| rcNtpv4ServerAddress             | 1.3.6.1.4.1.2272.1.33.4.1.2    | 7.0                 |
| rcNtpv4ServerAddressType         | 1.3.6.1.4.1.2272.1.33.4.1.1    | 7.0                 |
| rcNtpv4ServerAuthEnabled         | 1.3.6.1.4.1.2272.1.33.4.1.10   | 7.0                 |
| rcNtpv4ServerAuthentication      | 1.3.6.1.4.1.2272.1.33.4.1.4    | 7.0                 |
| rcNtpv4ServerAuthStatus          | 1.3.6.1.4.1.2272.1.33.4.1.11   | 7.0                 |
| rcNtpv4ServerBroadcast           | 1.3.6.1.4.1.2272.1.33.4.1.9    | 7.0                 |

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| Object Name                       | Object OID                       | New in VOSS Release |
|-----------------------------------|----------------------------------|---------------------|
| rcNtpv4ServerDelay                | 1.3.6.1.4.1.2272.1.33.4.1.16     | 7.0                 |
| rcNtpv4ServerDispersion           | 1.3.6.1.4.1.2272.1.33.4.1.17     | 7.0                 |
| rcNtpv4ServerEnable               | 1.3.6.1.4.1.2272.1.33.4.1.3      | 7.0                 |
| rcNtpv4ServerEntry                | 1.3.6.1.4.1.2272.1.33.4.1        | 7.0                 |
| rcNtpv4ServerJitter               | 1.3.6.1.4.1.2272.1.33.4.1.20     | 7.0                 |
| rcNtpv4ServerKeyld                | 1.3.6.1.4.1.2272.1.33.4.1.5      | 7.0                 |
| rcNtpv4ServerLastEvent            | 1.3.6.1.4.1.2272.1.33.4.1.21     | 7.0                 |
| rcNtpv4ServerOffset               | 1.3.6.1.4.1.2272.1.33.4.1.18     | 7.0                 |
| rcNtpv4ServerPrecision            | 1.3.6.1.4.1.2272.1.33.4.1.19     | 7.0                 |
| rcNtpv4ServerReachable            | 1.3.6.1.4.1.2272.1.33.4.1.13     | 7.0                 |
| rcNtpv4ServerRootDelay            | 1.3.6.1.4.1.2272.1.33.4.1.14     | 7.0                 |
| rcNtpv4ServerRootDisp             | 1.3.6.1.4.1.2272.1.33.4.1.15     | 7.0                 |
| rcNtpv4ServerRowStatus            | 1.3.6.1.4.1.2272.1.33.4.1.6      | 7.0                 |
| rcNtpv4ServerStratum              | 1.3.6.1.4.1.2272.1.33.4.1.7      | 7.0                 |
| rcNtpv4ServerSynchronized         | 1.3.6.1.4.1.2272.1.33.4.1.12     | 7.0                 |
| rcNtpv4ServerTable                | 1.3.6.1.4.1.2272.1.33.4          | 7.0                 |
| rcNtpv4ServerVersion              | 1.3.6.1.4.1.2272.1.33.4.1.8      | 7.0                 |
| rcOvsdbCertFileInstallAction      | 1.3.6.1.4.1.2272.1.225.1.2.1.3   | 7.0                 |
| rcOvsdbCertificateFilename        | 1.3.6.1.4.1.2272.1.225.1.2.1.2   | 7.0                 |
| rcOvsdbControllerEntry            | 1.3.6.1.4.1.2272.1.225.1.2.2.1   | 7.0                 |
| rcOvsdbControllerEntryRowStatus   | 1.3.6.1.4.1.2272.1.225.1.2.2.1.5 | 7.0                 |
| rcOvsdbControllerIpAddr           | 1.3.6.1.4.1.2272.1.225.1.2.2.1.2 | 7.0                 |
| rcOvsdbControllerPort             | 1.3.6.1.4.1.2272.1.225.1.2.2.1.4 | 7.0                 |
| rcOvsdbControllerProtocol         | 1.3.6.1.4.1.2272.1.225.1.2.2.1.3 | 7.0                 |
| rcOvsdbControllerStatusEntry      | 1.3.6.1.4.1.2272.1.225.1.2.4.1   | 7.0                 |
| rcOvsdbControllerStatusIpAddress  | 1.3.6.1.4.1.2272.1.225.1.2.4.1.1 | 7.0                 |
| rcOvsdbControllerStatusOperStatus | 1.3.6.1.4.1.2272.1.225.1.2.4.1.5 | 7.0                 |

*Table continues...*

Related Information

| Object Name                                 | Object OID                            | New in VOSS Release |
|---------------------------------------------|---------------------------------------|---------------------|
| rcOvsdbControllerStatusPort                 | 1.3.6.1.4.1.2272.1.225.1.2.4.1.3      | 7.0                 |
| rcOvsdbControllerStatusProtocol             | 1.3.6.1.4.1.2272.1.225.1.2.4.1.2      | 7.0                 |
| rcOvsdbControllerStatusSource               | 1.3.6.1.4.1.2272.1.225.1.2.4.1.4      | 7.0                 |
| rcOvsdbControllerStatusTable                | 1.3.6.1.4.1.2272.1.225.1.2.4          | 7.0                 |
| rcOvsdbControllerTable                      | 1.3.6.1.4.1.2272.1.225.1.2.2          | 7.0                 |
| rcOvsdbEnable                               | 1.3.6.1.4.1.2272.1.225.1.2.1.1        | 7.0                 |
| rcOvsdbManagedInterfacesEntry               | 1.3.6.1.4.1.2272.1.225.1.2.3.1        | 7.0                 |
| rcOvsdbManagedInterfacesSid                 | 1.3.6.1.4.1.2272.1.225.1.2.3.1.1      | 7.0                 |
| rcOvsdbManagedInterfacesRowStatus           | 1.3.6.1.4.1.2272.1.225.1.2.3.1.2      | 7.0                 |
| rcOvsdbManagedInterfacesTable               | 1.3.6.1.4.1.2272.1.225.1.2.3          | 7.0                 |
| rcOvsdbMib                                  | 1.3.6.1.4.1.2272.1.225.1              | 7.0                 |
| rcOvsdbNotifications                        | 1.3.6.1.4.1.2272.1.225.1.1            | 7.0                 |
| rcOvsdbObjects                              | 1.3.6.1.4.1.2272.1.225.1.2            | 7.0                 |
| rcOvsdbPrivateKeyFilename                   | 1.3.6.1.4.1.2272.1.225.1.2.1.4        | 7.0                 |
| rcOvsdbPrivateKeyInstallAction              | 1.3.6.1.4.1.2272.1.225.1.2.1.5        | 7.0                 |
| rcOvsdbReplicationEnable                    | 1.3.6.1.4.1.2272.1.225.1.2.1.6        | 7.0                 |
| rcOvsdbReplicationLocalIpAddr               | 1.3.6.1.4.1.2272.1.225.1.2.1.8        | 7.0                 |
| rcOvsdbReplicationPeerIpAddr                | 1.3.6.1.4.1.2272.1.225.1.2.1.7        | 7.0                 |
| rcOvsdbReplicationState                     | 1.3.6.1.4.1.2272.1.225.1.2.1.9        | 7.0                 |
| rcOvsdbScalars                              | 1.3.6.1.4.1.2272.1.225.1.2.1          | 7.0                 |
| rcPlsbGlobalNicknameDynamicAllocationStatus | 1.3.6.1.4.1.2272.1.78.1.7             | 7.0                 |
| rcPlsbGlobalNicknameServerEnable            | 1.3.6.1.4.1.2272.1.78.1.9             | 7.0                 |
| rcPlsbGlobalNicknameServerRange             | 1.3.6.1.4.1.2272.1.78.1.8             | 7.0                 |
| rcPrFilterAclSid                            | 1.3.6.1.4.1.2272.1.202.1.1.2.3.1.1.20 | 7.0                 |

*Table continues...*

| Object Name                                  | Object OID                            | New in VOSS Release |
|----------------------------------------------|---------------------------------------|---------------------|
| rcPrFilterAclMatchType                       | 1.3.6.1.4.1.2272.1.202.1.1.2.3.1.1.19 | 7.0                 |
| rcRadiusDynAuthClientAddress                 | 1.3.6.1.4.1.2272.1.29.6.1.2           | 7.0                 |
| rcRadiusDynAuthClientAddressType             | 1.3.6.1.4.1.2272.1.29.6.1.1           | 7.0                 |
| rcRadiusDynAuthClientEnabled                 | 1.3.6.1.4.1.2272.1.29.6.1.5           | 7.0                 |
| rcRadiusDynAuthClientEntry                   | 1.3.6.1.4.1.2272.1.29.6.1             | 7.0                 |
| rcRadiusDynAuthClientReplayProtection        | 1.3.6.1.4.1.2272.1.29.6.1.7           | 7.0                 |
| rcRadiusDynAuthClientRowStatus               | 1.3.6.1.4.1.2272.1.29.6.1.6           | 7.0                 |
| rcRadiusDynAuthClientSecret                  | 1.3.6.1.4.1.2272.1.29.6.1.4           | 7.0                 |
| rcRadiusDynAuthClientStats Table             | 1.3.6.1.4.1.2272.1.29.7               | 7.0                 |
| rcRadiusDynAuthClientTable                   | 1.3.6.1.4.1.2272.1.29.6               | 7.0                 |
| rcRadiusDynAuthClientUdpPort                 | 1.3.6.1.4.1.2272.1.29.6.1.3           | 7.0                 |
| rcRadiusDynAuthServerRcAcks                  | 1.3.6.1.4.1.2272.1.29.7.1.4           | 7.0                 |
| rcRadiusDynAuthServerRcAuthOnlyRequests      | 1.3.6.1.4.1.2272.1.29.7.1.2           | 7.0                 |
| rcRadiusDynAuthServerRcBadAuths              | 1.3.6.1.4.1.2272.1.29.7.1.11          | 7.0                 |
| rcRadiusDynAuthServerRcDropped               | 1.3.6.1.4.1.2272.1.29.7.1.10          | 7.0                 |
| rcRadiusDynAuthServerRcDupRequests           | 1.3.6.1.4.1.2272.1.29.7.1.3           | 7.0                 |
| rcRadiusDynAuthServerRcMalformed             | 1.3.6.1.4.1.2272.1.29.7.1.9           | 7.0                 |
| rcRadiusDynAuthServerRcNacks                 | 1.3.6.1.4.1.2272.1.29.7.1.5           | 7.0                 |
| rcRadiusDynAuthServerRcNacksAuthOnlyRequests | 1.3.6.1.4.1.2272.1.29.7.1.6           | 7.0                 |
| rcRadiusDynAuthServerRcNacksNoSess           | 1.3.6.1.4.1.2272.1.29.7.1.7           | 7.0                 |
| rcRadiusDynAuthServerRcRequests              | 1.3.6.1.4.1.2272.1.29.7.1.1           | 7.0                 |
| rcRadiusDynAuthServerRcSessReauthenticated   | 1.3.6.1.4.1.2272.1.29.7.1.8           | 7.0                 |
| rcRadiusDynAuthStatsClientEntry              | 1.3.6.1.4.1.2272.1.29.7.1             | 7.0                 |
| rcVossSystemFanTrayInfoTable                 | 1.3.6.1.4.1.2272.1.101.1.1.3          | 7.0                 |
| rcVossSystemFanInfoTable                     | 1.3.6.1.4.1.2272.1.101.1.1.4          | 7.0                 |
| rcVossSystemCardLedTable                     | 1.3.6.1.4.1.2272.1.101.1.1.5          | 7.0                 |
| rcVrflpv6IpVpnExportRTList                   | 1.3.6.1.4.1.2272.1.203.1.1.7.1.4      | 7.0                 |
| rcVrflpv6IpVpnImportRTList                   | 1.3.6.1.4.1.2272.1.203.1.1.7.1.3      | 7.0                 |
| rcVrflpv6IpVpnIsidNumber                     | 1.3.6.1.4.1.2272.1.203.1.1.7.1.7      | 7.0                 |
| rcVrflpv6IpVpnRowStatus                      | 1.3.6.1.4.1.2272.1.203.1.1.7.1.6      | 7.0                 |

*Table continues...*

Related Information

| Object Name                  | Object OID                          | New in VOSS Release |
|------------------------------|-------------------------------------|---------------------|
| rcVrflpv6IpVpnStatus         | 1.3.6.1.4.1.2272.1.203.1.1.7.1.2    | 7.0                 |
| rcVrflpv6IpVpnSvcLbiAllocOpt | 1.3.6.1.4.1.2272.1.203.1.1.7.1.5    | 7.0                 |
| rcVrflpv6IpVpnTable          | 1.3.6.1.4.1.2272.1.203.1.1.7        | 7.0                 |
| rcVrflpv6IpVpnTableEntry     | 1.3.6.1.4.1.2272.1.203.1.1.7.1      | 7.0                 |
| rcVrflpv6IpVpnTableSize      | 1.3.6.1.4.1.2272.1.203.1.1.6        | 7.0                 |
| rcVrflpv6IpVpnVrflId         | 1.3.6.1.4.1.2272.1.203.1.1.7.1.1    | 7.0                 |
| rcVrflpv6MaxRoutes           | 1.3.6.1.4.1.2272.1.203.1.1.1.2.1.11 | 7.0                 |
| rcVrflpv6MaxRoutesTrapEnable | 1.3.6.1.4.1.2272.1.203.1.1.1.2.1.12 | 7.0                 |
| rcWebROPassword              | 1.3.6.1.4.1.2272.1.18.7             | 7.0                 |
| rcWebROUserName              | 1.3.6.1.4.1.2272.1.18.6             | 7.0                 |