ExtremeXOS® v34.1.1 Release Notes

New Features, Improvements, and Known Issues

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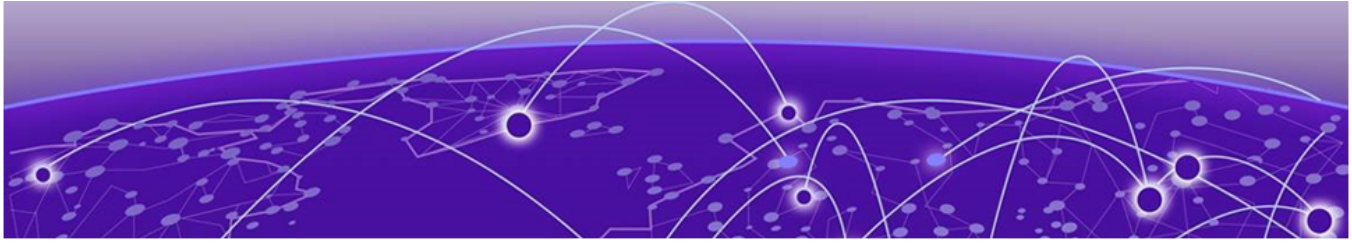

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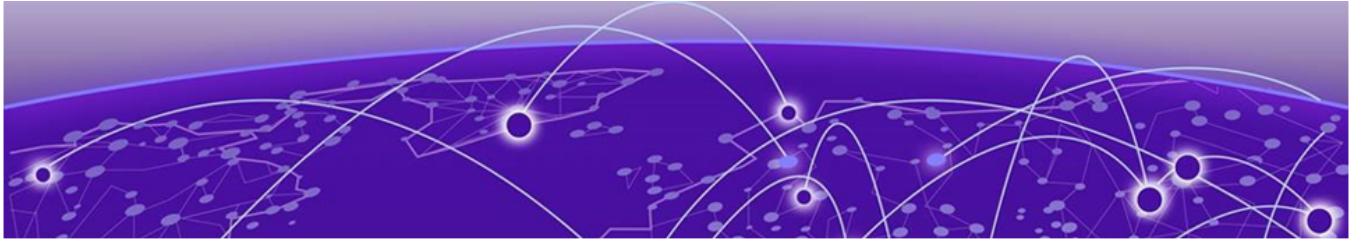


Abstract

The release notes for ExtremeXOS® v34.1.1 detail new features, software improvements, supported platforms, upgrade prerequisites, scaling limits, and known issues for X435, X465, and X695 switches. New security features include IPv6 First-Hop Security with RA Guard, DHCPv6 snooping, IPv6 Source Guard, and Neighbor Discovery Inspection; hybrid post-quantum key exchange for SSH, RADIUS over TLS, and Syslog over TLS; and SNMPv3 authentication with SHA-256, SHA-384, and SHA-512. Access and policy enhancements include ACL rules that match both source and destination network zones, Fabric Attach bypass of NetLogin for zero-touch clients, visibility of Fabric Attach clients that fail authentication, automatic Fabric Attach authentication on uplinks, and NetLogin tracking of client IP addresses for the RADIUS Framed-IP-Address attribute. Other additions include a bandwidth mode for flood rate limiting, a configurable EAPS flush method, local staging of debug data for SCP transfer, detailed FEC statistics, SNMP pause frame counters, and updates for the Y2038 and Y2036 time overflows and for time-zone changes in Alberta, the Northwest Territories, and British Columbia. Infrastructure upgrades include Linux kernel 6.12 and OpenSSL 3.5.8. Supported deployment models include dual-OS capability with automatic selection by using ExtremeCloud IQ, Extreme Management Center, or manual bootloader configuration. Base and Premier license limits, compatibility matrices with Extreme Management Center, supported RADIUS servers, and tested third-party products are specified. Open issues, known behavioral limitations such as DHCPv6 snooping binding learning when only IPv4 source IP lockdown is enabled, and resolved defects are documented for technical implementation and troubleshooting.

Preface

Read the following topics to learn about:

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

Conventions

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

Text Conventions

Unless otherwise noted, information in this document applies to all supported environments for the products in question. Exceptions, like command keywords associated with a specific software version, are identified in the text.

When a feature, function, or operation pertains to a specific hardware product, the product name is used. When features, functions, and operations are the same across an entire product family, such as Extreme Networks switches, the product is referred to as *the switch*.

Table 1: Notes and warnings

Icon	Notice type	Alerts you to...
	Tip	Helpful tips and notices for using the product
	Note	Useful information or instructions
	Important	Important features or instructions
	Caution	Risk of personal injury, system damage, or loss of data
	Warning	Risk of severe personal injury

Table 2: Text

Convention	Description
`screen displays`	This typeface indicates command syntax, or represents information as it is displayed on the screen.
The words *enter* and *type*	When you see the word *enter* in this guide, you must type something, and then press the Return or Enter key. Do not press the Return or Enter key when an instruction simply says *type*.
Key names	Key names are written in boldface, for example **Ctrl** or **Esc**. If you must press two or more keys simultaneously, the key names are linked with a plus sign (+). Example: Press **Ctrl**+**Alt**+**Del**
Words in italicized type	Italics emphasize a point or denote new terms at the place where they are defined in the text. Italics are also used when referring to publication titles.
NEW!	New information. In a PDF, this is searchable text.

Table 3: Command syntax

Convention	Description
bold text	Bold text indicates command names, keywords, and command options.
italic text	Italic text indicates variable content.
`[ ]`	Syntax components displayed within square brackets are optional. Default responses to system prompts are enclosed in square brackets.
`{ x | y | z }`	A choice of required parameters is enclosed in curly brackets separated by vertical bars. You must select one of the options.
x | **y**	A vertical bar separates mutually exclusive elements.
< >	Nonprinting characters, such as passwords, are enclosed in angle brackets.
...	Repeat the previous element, for example, *member*[*member*...].
\	In command examples, the backslash indicates a “soft” line break. When a backslash separates two lines of a command input, enter the entire command at the prompt without the backslash.

Platform-Dependent Conventions

Unless otherwise noted, all information applies to all platforms supported by software, which are the following:

- ExtremeSwitching® switches
- SummitStack™

When a feature or feature implementation applies to specific platforms, the specific platform is noted in the heading for the section describing that implementation in the command documentation (see the Extreme Documentation page at). In many cases, although the command is available on all platforms, each platform uses specific keywords. These keywords specific to each platform are shown in the Syntax Description and discussed in the Usage Guidelines sections.

Terminology

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

Documentation and Training

Find Extreme Networks product information at the following locations:

Current Product Documentation

Release Notes

Hardware and Software Compatibility for Extreme Networks products

Extreme Optics Compatibility

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

Open Source Declarations

Some software files have been licensed under certain open source licenses. Information is available on the Open Source Declaration page.

Training

Extreme Networks offers product training courses, both online and in person, as well as specialized certifications. For details, visit the Extreme Networks Training page.

Help and Support

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

Extreme Agent ONE™ Coworker "Talk to Support"

For customers with Extreme Platform ONE™ ExtremeWorks / ExtremeWorks Premier subscriptions, technical support cases can be created using Extreme Agent ONE™ Coworker. This option requires that a user has an existing Extreme Networks Support Portal account login (using the same email address as used to log into Extreme Platform ONE™ Networking.) For more information about Extreme Agent ONE™ Coworker “Talk to Support”, see the Extreme Agent ONE™ Coworker documentation.

Extreme Portal

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

The Hub

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

Call GTAC

For immediate support: (800) 998 2408 (toll-free in U.S. and Canada) or 1 (408) 579 2800. For the support phone number in your country, visit www.extremenetworks.com/support/contact.

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

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

Subscribe to Product Announcements

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

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

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

Extreme Support Portal

The Extreme Networks Extreme Support Portal provides access to:

- License management
- Firmware downloads
- Case management
- GTAC Knowledge base
- And more

To access the portal, you must first create an account. The Extreme Support Portal provides separate registration forms for End Customers and Partners.

Before you begin, gather the following: A valid corporate email address — required to receive the appropriate level of portal access. Your company details: company name, address, phone number (include country code if outside the US), job title, and job role. At least one supporting identifier: Sold-to number, serial number, contract number, or Purchase Order (PO) number.

Create an End Customer Extreme Support Portal Account

The Extreme Support Portal provides separate registration forms for End Customers and Partners. Use this task to create an End Customer account.



Note
If you are adding a new user to an existing account, the new user must complete and be vetted through the same registration process.

The portal registration page is at https://extreme-networks.my.site.com/.

1. Go to the Extreme Support Portal and select **Login or Signup** on the login page.
2. On the login page, select **Create a new Extreme Customer Portal Account** .
3. Complete all required fields (marked *). Use your corporate email address to ensure the appropriate access level.

   Important
   Do not register with a personal email address.

4. Read the Support Portal Terms of Use and select the acknowledgment check box to accept.

   Important
   You must accept the Terms of Use before you can submit the form. You can adjust or withdraw consent at any time through the Email Preference Center.

5. Select **Register**.

   A confirmation message appears on the page and a password setup email is sent to your corporate email address.
6. Open the password setup email and follow the instructions to create your portal password.

   Tip
   If the email does not appear in your inbox within a few minutes, check your spam or junk mail folder.

7. To log in to the support portal go to: https://extremesaas.my.site.com/.

Create a Partner Extreme Support Portal Account

The Extreme Support Portal provides separate registration forms for End Customers and Partners. Use this task to create a Partner account.

The portal registration page is at https://extreme-networks.my.site.com/.

1. Go to the Extreme Support Portal and select **Login or Signup** on the login page.
2. On the login page, select **Create a new Extreme Partner Portal Account**.

3. Complete all required fields (marked *). Use your corporate email address to ensure the appropriate access level.

   Important
   Do not register with a personal email address.

4. Read the following terms and select the required check boxes:
   - Support Portal Terms of Use
   - Extreme Networks Standard Reseller Terms and Conditions
   - Trade Compliance Terms and Conditions

   You can adjust or withdraw consent at any time through the Email Preference Center.
5. Select **Register**.

   A confirmation message appears on the page and a password setup email is sent to your corporate email address.
6. Open the password setup email and follow the instructions to create your portal password.

   Tip
   If the email does not appear in your inbox within a few minutes, check your spam or junk mail folder.

7. To log in to the support portal go to: https://extremesaas.my.site.com/.

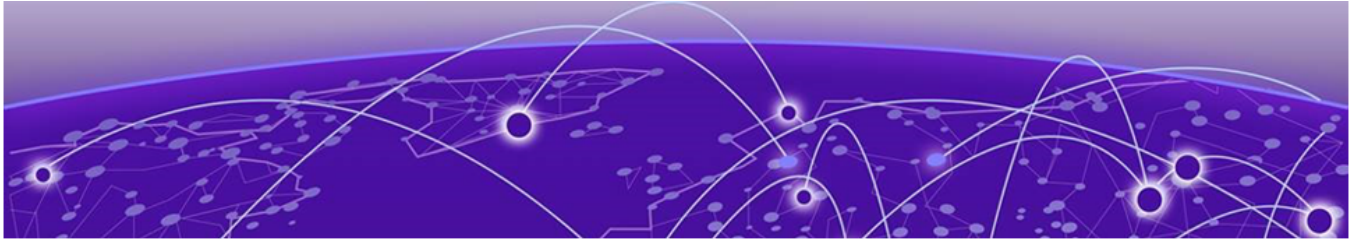
Send Feedback

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

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

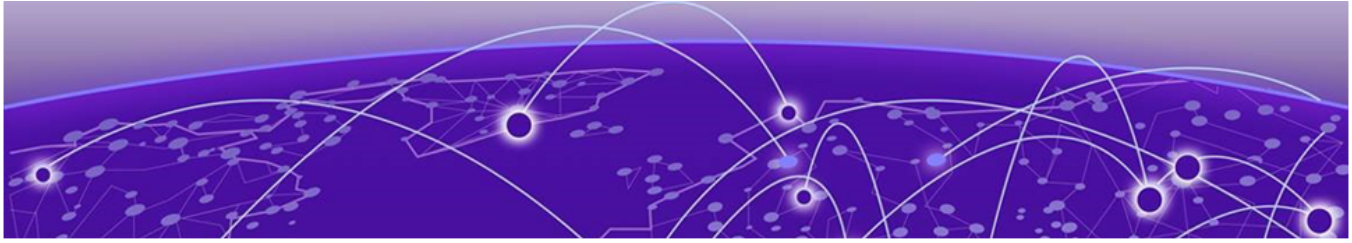
To send feedback, email us at Product-Documentation@extremenetworks.com.

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



Overview

These release notes document ExtremeXOS added features and resolved software deficiencies for the title version.



Security Information

Linux Kernel on page 14
OpenSSL Version on page 14

The following section covers important security information.

Linux Kernel

ExtremeXOS 34.1.1 uses the following Linux Kernel versions by platform:

- **Linux Kernel 6.12:** X465, X695
- **Linux Kernel 5.10:** X435

OpenSSL Version

This version of ExtremeXOS uses OpenSSL FIPS Object Module 3.5.8.

Upgrading ExtremeXOS

For instructions about upgrading ExtremeXOS software, see *Software Upgrade and Boot Options* in *ExtremeXOS v34.1.1 User Guide*.

An ExtremeXOS core image (.xos file) must be downloaded and installed on the alternate (non-active) partition. If you try to download to an active partition, the system displays the following error message: `Error: Image can only be installed to the non-active partition.` An ExtremeXOS modular software package (.xmod file) can still be downloaded and installed on either the active or alternate partition.



Note

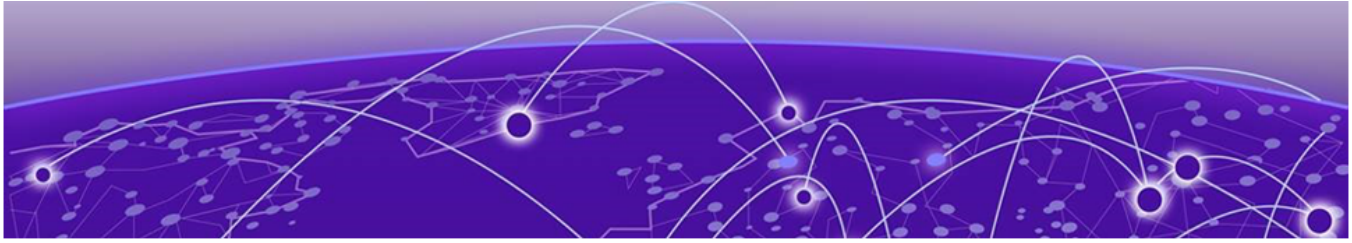
New ExtremeSwitching X435 PoE switches with a Giga device MCU part (switch default ships with supported EXOS versions from the factory) will prevent the switch downgrade to older EXOS versions.

The following error message is displayed during the downgrades to older versions:

```
Error: Failed to download image - summitlite_arm-31.6.1.3.xos does not
include compatible PoE microcontroller support. See the User Guide for
information on installing a newer software release. See the
Hardware/Software Compatibility and Recommendation Matrices to verify the
supported releases.
```

The switch can be identified for the inclusion of the Giga device MCU by checking the PoE firmware revision (5.0 or later) by entering the `show inline-power stats` command (line four):

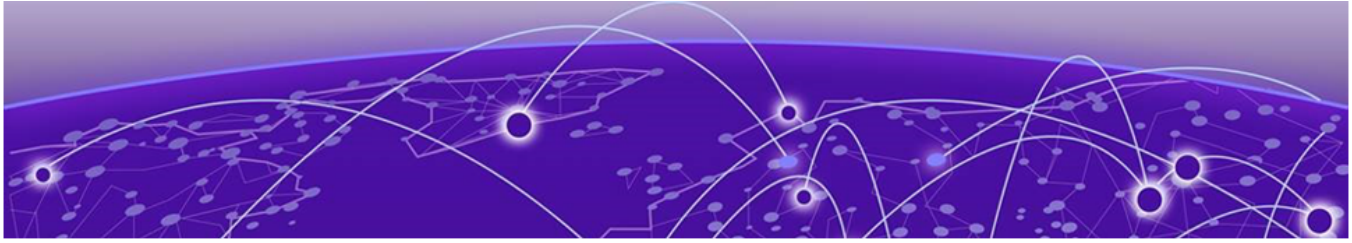
```
# show inline-power stats
Inline-Power Slot Statistics
Firmware status               : Operational
Firmware revision             : 5.0.0b4
Total ports powered           : 3
Total ports awaiting power    : 20
Total ports faulted           : 0
Total ports disabled          : 1
```



Newly Purchased Switches Require Software Upgrade

Newly delivered switches typically have pre-GA (general availability) ExtremeXOS software installed. You should promptly upgrade the software to the latest version available by visiting the Extreme Portal.

For information about upgrading the ExtremeXOS software, see the *ExtremeXOS Upgrade Process* topic in the *Software Upgrade and Boot Options* chapter of the *ExtremeXOS v34.1.1 User Guide*.



Default ExtremeXOS® Settings

The following table shows the default settings for ExtremeXOS starting with version 31.4, and shows any changes that have been made to these settings and in what version these changes were made.

Table 4: Default ExtremeXOS Settings

Feature	31.4 and earlier	31.5	31.6 and later
Account Lockout	After 3 consecutive login failures, account is locked for 5 minutes. [a]		
AVB	Disabled.		
BFD Strict Session Protection	Disabled.		
BGP	Disabled.		
Bluetooth	Enabled.		
BOOTP Relay	Disabled.		
CDP	Enabled.		
Configuration auto save	Disabled.		
Clear-flow	Disabled.		
Diagnostics	Admin level privileges required to show diagnostics. [a]		
DHCP	Disabled.		
DNS Cache Resolver and Analytics	Disabled.		
IPFIX	Disabled.		
IP NAT	Disabled.		
EAPS	Disabled.		
EDP	Enabled on management port.		
ELRP	Disabled.		
ESRP	Disabled.		

[a] If you choose enhanced security mode when initially setting up the switch or after running `unconfigure switch all`.

Table 4: Default ExtremeXOS Settings (continued)

Feature	31.4 and earlier	31.5	31.6 and later
Extended Edge Switching (VPEX)	Disabled.		
ExtremeCloud IQ	Enabled		
FEC	Disabled.		Enabled on Native 25Gb ports.
Identity Management	Disabled.		
IGMP	Enabled, set to IGMPv2 compatibility mode.		
IGMP Snooping	Enabled.		
Image Integrity Check	Disabled.		
IP Route Compression	Enabled.		
ISIS	Disabled.		
LLDP	Enabled.		
Log	Admin level privileges required to show log. [a]		
Logging memory buffer	Generate an event when the logging memory buffer exceeds 90% of capacity. [a]		
MAC Security	Disabled.		
MLD	Disabled.		
MLD Snooping	Disabled.		
MPLS	Disabled.		
MSRP	Disabled.		
MSTP	Enabled.		
NetLogin	All types of authentication are disabled.		
NTP	Disabled.		
ONEPolicy	Disabled.		
Policy rule model	Hierarchical (Unless upgrading from 30.5 with a saved configuration set to access list.)		
OpenFlow	Not supported.		
OSPF	Disabled.		
OVSDB	Disabled.		

Table 4: Default ExtremeXOS Settings (continued)

Feature	31.4 and earlier	31.5	31.6 and later
Passwords	Plain text password entry not allowed. [a]		
PIM	Disabled.		
PIM Snooping	Disabled.		
PoE Fast PoE Perpetual PoE	Enabled. Disabled. Disabled.		
RADIUS	Disabled for both switch management and network login.		
RIP	Disabled.		
RMON	Disabled. However, even in the disabled state, the switch responds to RMON queries and sets for alarms and events.		
sFlow	Disabled.		
SNMP server	Disabled. [a]		
SSH	Disabled.		
Stacking-support	Disabled, except for X450-G2, X465.		
Stacking auto-discovery	Enabled.		
STP	Enabled.		
Syslog	Disabled.		
TACACS	Disabled.		
Telnet	Disabled. [a]		Enabled.
VPEX IP Multicast Replication	Controlling Bridge		
VPLS	All newly created VPLS instances are enabled.		
Watchdog	Enabled.		
Web HTTP server	Enabled. [a]		
Web HTTPS server	Enabled. [a]		

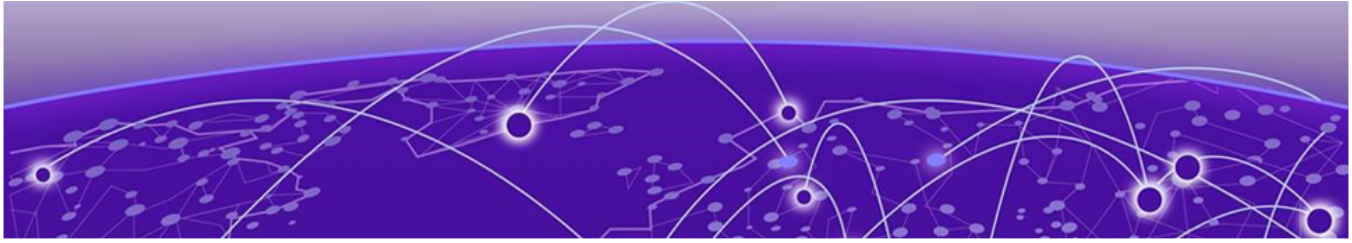
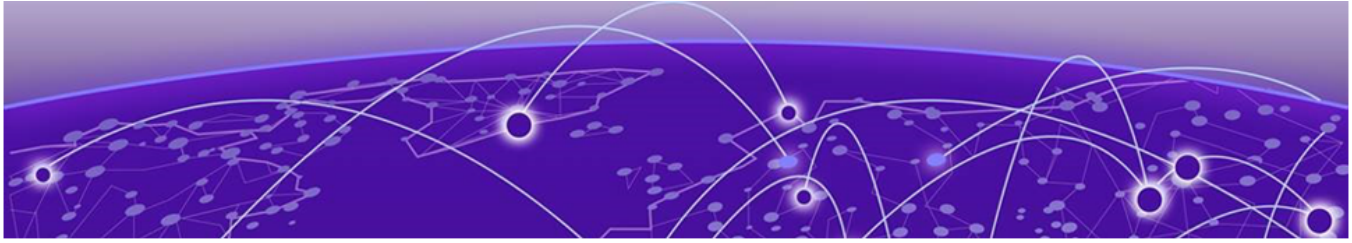


Image File Names

You can identify the appropriate image or module for your platform based on the file name prefix of the image.

Table 5: Image Types (Prefixes)

Switches	Image File Type (Prefix)
X465	`x465-` Example: `x465-33.3.1.21.xos`
X695	`onie-` Example: `onie-33.1.1.31.xos` **Note:** These image files use the Open Network Install Environment (ONIE).
X435	`summitlite_arm-` Example: `summitlite_arm-30.5.0.102.xos`



New and Corrected Features

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Updates to Avoid NTP Epocalypse - Y2036 Overflow on page 38
Updates to Avoid Epocalypse - Y2038 Overflow on page 39

This section lists the new and corrected features supported in this software version:

Debug Data Local Staging and SCP Transfer Support

Version 34.1.1 extends the upload debug command to support local staging of debug files for manual transfer via secure protocols such as SCP, providing an alternative to TFTP and enabling USB-based file transport.

Overview: The existing upload debug command generates and transfers debug tar files using TFTP in a single operation. Version 34.1.1 adds a stage-locally option that generates debug files and stages them on the switch internal storage (/usr/local/tmp) or on removable USB storage (/usr/local/ext), allowing users to manually transfer them later using SCP, TFTP, or by physically

transporting USB media. This approach supports customers requiring secure communication and provides an alternative when direct network access is unavailable.

Debug files staged locally can be transferred manually, avoiding potential disk-full scenarios on the switch internal partition and enabling flexible offloading strategies.

Modified CLI Commands

Stage debug data locally for manual transfer:

upload debug stage-locally [*directory_path*|**default**]

When `default` is specified, debug files are staged in the directory configured by **configure debug core-dumps** *directory_path*, or in /usr/local/tmp if core-dumps is disabled.

Example — Stage to USB storage:

upload debug stage-locally /usr/local/ext

Optional filename formatting (applies to staged or uploaded files):

upload debug stage-locally *directory_path* **name-format** [**none**|**date**|**date-time**]

Name-format options: none (base filename only), date (append ISO 8601 date YYYY-mm-dd), date-time (append mmddHHMM, default).

Traditional TFTP upload (unchanged):

upload debug [*ipaddress*|*hostname*] {{**vr** *vrname*} {**block-size** *block_size*}}

Supported Platforms

All platforms.

Notes

- In a stack, the primary switch fetches and stores debug tar files from all Backup and Standby nodes, eliminating the need to connect to individual stack slots.
- After staging completes, a reminder is displayed to manually remove debug files using `rm` after transfer.

EAPS Flush Method Configuration

Ethernet Automatic Protection Switching (EAPS) now supports configurable flush methods to control which MAC addresses are cleared when a ring port fails. Select between port-based flushing (default) or VLAN-and-port-based flushing to optimize convergence timing and MAC relearning in multi-VLAN ring environments.

Issue: When an EAPS ring port fails, stale MAC address entries learned on that port must be cleared to force proper relearning on the alternate path. Previously, EAPS used a fixed

flushing strategy that was suboptimal for multi-VLAN deployments, resulting in unnecessary convergence delays and delayed MAC relearning across VLANs not affected by the port failure.

Resolution: Version 34.1.1 introduces the `configure eaps flush-method` command with two configurable modes: `port-based` (flush only MAC addresses learned on the failed port) and `vlan-and-port-based` (flush only MAC addresses learned on the failed port within affected VLANs). This allows operators to reduce the learning scope during failover and improve convergence time in multi-VLAN ring topologies.

Key Capabilities:

- Configurable EAPS MAC flush method at the ring level using the `configure eaps flush-method` command
- Two flush modes: `port-based` (flush MACs on failed port) and `vlan-and-port-based` (flush MACs on failed port within affected VLANs)
- Port-based flushing is the default mode, maintaining backward compatibility with existing deployments
- VLAN-and-port-based mode reduces MAC clearing scope, improving convergence performance in multi-VLAN environments
- Monitoring commands `show eaps` and `show eaps detail` display the configured flush method
- Configuration persists across device reboot

Configuration Syntax

Configure the EAPS flush method:

```
configure eaps flush-method [port-based | vlan-and-port-based]
```

Example: Enable VLAN-and-Port-Based Flushing

```
configure eaps flush-method vlan-and-port-based
show eaps detail
```

This configuration optimizes convergence for multi-VLAN ring topologies by limiting MAC address clearing to only the failed port and affected VLANs.

Supported Platforms

All platforms.

Fabric Attach Client Auto-Enable Authentication on Uplinks

Version 33.5.2 added automatic enablement of Fabric Attach message authentication on the uplinks of an FA Proxy switch towards the FA Server, if the FA Server is found to use Fabric Attach message authentication. Version 34.1.1 adds the same logic to automatically enable Fabric Attach message authentication on the uplinks of an FA Client switch towards the FA Proxy switch, if the FA Proxy is found to use Fabric Attach message authentication. This ensures that Fabric Attach with message authentication can be deployed even in cascaded

deployments where two levels of FA switches (FA Proxy + FA Client) are connected behind the FA Server.

Overview: When Fabric Attach message authentication is enabled on the FA server ports, the FA Proxy switch connected into those ports will automatically enable Fabric Attach message authentication on those uplinks. When Fabric Attach message authentication is also enabled on all the other FA Proxy ports, an FA Client switch connected into any of those ports will automatically enable Fabric Attach message authentication on that uplink as well.

Monitoring

View Fabric Attach authentication status of ports:

```
show fabric attach ports port_list authentication
```

View detailed Fabric Attach authentication status of ports:

```
show fabric attach ports port_list authentication detail
```

Supported Platforms

All platforms with Fabric Attach support.

Fabric Attach Clients That Fail Authentication Visibility

Version 34.1.1 will now display FA Clients which either have no FA message authentication or fail FA message authentication on ports where FA message authentication is enabled. In previous software versions these clients were not shown in the FA elements table.

Overview: When Fabric Attach authentication is enabled on a port and the connected FA Client device does not have FA message authentication enabled (or it does but with the wrong authentication key) then none of the Fabric Attach information provided by the FA Client will be acted upon by the switch. The FA client will however now be shown in the FA elements table. The switch will always record the FA Client type and FA authentication outcome into the inbound RADIUS VSA FA-Client-Type (182) and VSA FA-Client-PSK (183) when sending the RADIUS authentication request for the client, so that the RADIUS server may still decide whether to allow the FA Client onto the network.

Supported Scenarios:

- Non-Extreme Fabric Attach clients connecting to Extreme Fabric Attach proxy switches
- RADIUS server returns Fabric Attach VSAs with VLAN and NSI mapping information

Monitoring

View Fabric Attach elements, including clients that have no FA message authentication or fail it:

```
show fabric attach elements
```

Supported Platforms

All platforms with Fabric Attach support.

Fabric Attach Zero-Touch Client: Bypass NetLogin Authentication

Version 34.1.1 adds an option to bypass NetLogin authentication for Fabric Attach Zero-Touch Client (ZTC) devices, allowing automatic network access provisioning without additional authentication steps.

Overview: When the bypass NetLogin option is enabled for a Fabric Attach ZTC client, the switch automatically provisions the client with network access through Fabric Attach without requiring the client to complete NetLogin authentication. This simplifies deployment for trusted devices in automated environments.

Modified CLI Commands

Enable NetLogin bypass for a Fabric Attach zero-touch client type:

`configure fabric attach zero-touch-client` *`client_type`* **`bypass-netlogin on`**

Monitoring

View the Fabric Attach zero-touch client configuration:

`show fabric attach zero-touch-client`

View NetLogin bypassed clients:

`show fabric attach elements`

`show netlogin`

`show netlogin port` *`port_list`*

Supported Platforms

All platforms with Fabric Attach support.

FEC Statistics Detailed Display

Version 34.1.1 adds detailed Forward Error Correction (FEC) statistics for optical interfaces, to help diagnose marginal links, optics issues, and cabling problems.

Overview: FEC statistics provide visibility into the number of corrected and uncorrectable blocks detected on a port, and show which FEC clause is in use. Rising error counts indicate degrading optical signal quality before complete link failure occurs.

Available Statistics:

- Corrected blocks
- Uncorrectable blocks

- FEC clause

Modified CLI Commands

The FEC statistics are added to the output of the existing show ports forward-error-correction command.

View FEC status and statistics:

show ports *port_list* **forward-error-correction** [**no-refresh**]

Supported Platforms

All platforms with optical interfaces supporting FEC.

FIPS Compliance: Microsoft Golang for OpenSSL Support

Version 34.1.1 updates core components to use Microsoft's Golang distribution to maintain support for the OpenSSL interface required for FIPS compliance.

Overview: Google has discontinued support for a Golang interface to OpenSSL. To ensure the Extreme-labeled FIPS certificate covers all required components, Version 34.1.1 updates telegraf and inlets to use Microsoft's Golang version, which maintains OpenSSL interface support. This change enables continued use of the privately labeled OpenSSL FIPS module and ensures ongoing FIPS compliance certification.

Impact: FIPS-certified deployments maintain cryptographic compliance without requiring customer configuration changes.

Affected Platforms

All platforms with FIPS compliance requirements.

Flood Rate-Limit Bandwidth Mode

Version 34.1.1 extends flood rate-limiting to support bandwidth-based rate limiting in addition to packet-count limiting, enabling byte-rate control for flooded traffic.

Overview: Flood rate-limiting accepts bandwidth rate limits in addition to packet-per-second (pps) limits. Specify the rate in Kbps, Mbps, or Gbps, with an optional burst size, for broadcast, multicast, and unknown destination MAC traffic.

Modified CLI Commands

Configure flood rate-limit in bandwidth mode:

configure ports [*port_list* | *port_group*] **rate-limit flood** [**broadcast** | **multicast** | **unknown-destmac**] [**no-limit** | *pps* | *flood_bandwidth_rate* [**Kbps** | **Mbps** | **Gbps**] {**flood-burst-size** *burst_size* [**Kb** | **Mb**]}]

Example: The following command limits broadcast flood traffic on port 1 to 200 Mbps:

```
configure ports 1 rate-limit flood broadcast 200000 Kbps flood-burst-size 100 Kb out-
actions log disable-port
```

Monitoring

View the flood rate-limit configuration:

show ports *port_list* **information detail**

The following example shows the flood rate-limit settings in the output for port 1:

```
show ports 1 information detail
        Egress Port Rate:       No-limit
        Broadcast Rate:         200000 Kbps, Burst Size: 100 Kb
        Multicast Rate:         400000 Kbps, Burst Size: 200 Kb
        Unknown Dest Mac Rate:  500000 Kbps, Burst Size: 500 Kb
```

Supported Platforms

All platforms.

Hardware No Longer Supported

The following hardware is no longer supported in this release:

- X440-G2 Series
- X450-G2 Series
- X460-G2 Series

Hybrid PQC Support in RADIUS TLS and Syslog TLS

Version 34.1.1 adds support for hybrid post-quantum cryptography key encapsulation mechanism (KEM) X25519MLKEM768 in RADIUS TLS and syslog TLS connections. OpenSSL is upgraded from 3.0.10 to 3.5.8 (LTS version) to support this hybrid algorithm, and the maximum TLS version is now TLS 1.3. Support for RSA PSS signature algorithms (rsa_pss_rsae_sha256, rsa_pss_rsae_sha384, rsa_pss_rsae_sha512) is also added.

This feature is automatically enabled and requires no configuration. The switch automatically negotiates X25519MLKEM768 during TLS handshake with compatible RADIUS TLS and syslog TLS servers. The RADIUS TLS or syslog TLS server must support TLS 1.3 and OpenSSL 3.5.0 or later for the hybrid PQC algorithm to be used. If the server does not support this algorithm, the connection proceeds with standard TLS negotiation. Verify server support by checking openssl version and available TLS groups using `openssl list -kem-algorithms` and `openssl list -tls-groups` commands.

Verification

Verify RADIUS TLS or syslog TLS server compatibility:

Check server OpenSSL version:

```
openssl version
```

List available KEM algorithms:

```
openssl list -kem-algorithms
```

List supported TLS groups:

```
openssl list -tls-groups
```

To verify X25519MLKEM768 negotiation with the RADIUS TLS or syslog TLS server, collect a packet capture and examine the TLS handshake. Look for supported_groups extension with value 0x11ec (X25519MLKEM768) and key_share extension with 1216-byte key exchange data (X25519: 32 bytes + MLKEM768: 1184 bytes).

Supported Platforms

All platforms.

IPv6 First-Hop Security

Version 34.1.1 introduces IPv6 First-Hop Security features that protect edge ports from IPv6 attacks and unauthorized network access.

Overview: IPv6 First-Hop Security implements multiple edge protection mechanisms that work together to prevent IPv6-based attacks and enforce network access policies:

- **RA Guard:** Blocks rogue Router Advertisements on untrusted ports, preventing router impersonation and man-in-the-middle attacks.
- **DHCPv6 Snooping:** Blocks DHCPv6 server messages on untrusted ports, preventing rogue DHCPv6 servers. It also builds a binding table of IPv6 address, MAC address, VLAN and port from DHCPv6 exchanges, similar to DHCPv4 snooping.
- **IPv6 Source Guard:** Allows IPv6 traffic on a port only from source addresses in the binding table, learned through DHCPv6 snooping or configured as static bindings. Traffic from link-local source addresses is denied by default.
- **Neighbor Discovery Inspection (NDI):** Validates Neighbor Solicitation and Neighbor Advertisement messages against the binding table, preventing neighbor spoofing and neighbor cache poisoning attacks.

New CLI Commands

Enable RA Guard:

```
enable ip-security {ipv6} ra-guard {vlan} vlan_name ports [port_list
| all] [violation-action [drop-packet {[block-port | block-mac]
[permanently | duration duration_in_seconds]}]]
```

Disable RA Guard:

```
disable ip-security {ipv6} ra-guard {vlan} vlan_name ports [port_list |
all]
```

Configure or unconfigure trusted ports for routers that send IPv6 Router Advertisements:

[**configure** | **unconfigure**] **trusted-ports** {**ipv6**} [*port_list* | **all**] **trust-for router**

Enable DHCPv6 snooping:

enable ip-security ipv6 dhcp-snooping {**vlan**} *vlan_name* **ports** [*port_list* | **all**] **violation-action** [**none** | **drop-packet** {[**block-port** | **block-mac**] [**permanently** | **duration** *duration_in_seconds*]}]

Disable DHCPv6 snooping:

disable ip-security ipv6 dhcp-snooping {**vlan**} *vlan_name* **ports** [*port_list* | **all**]

Clear DHCPv6 snooping entries:

clear ip-security ipv6 dhcp-snooping entries {**vlan**} *vlan_name* {**ipv6-address** [*ipv6_address*] | **ports** [*port_list*]}

Add a DHCPv6 binding entry:

configure ip-security dhcp-bindings add ipv6 *ipv6_address* **mac** *mac_address* {**vlan**} *vlan_name* **server-port** *server_port* **client-port** *client_port* **lease-time** *seconds*

Delete a DHCPv6 binding entry:

configure ip-security dhcp-bindings delete ipv6 *ipv6_address* {**vlan**} *vlan_name*

Configure or unconfigure trusted ports for DHCPv6 servers:

[**configure** | **unconfigure**] **trusted-ports ipv6** [*port_list* | **all**] **trust-for dhcp-server**

Enable or disable DHCPv6 binding restoration:

[**enable** | **disable**] **ip-security dhcp-bindings restoration** {**ipv4-only** | **ipv6-only** | **both**}

Enable IPv6 Source Guard:

enable ip-security ipv6 source-ip-lockdown ports [*port_list* | **all**] {**link-local** [**permit** | **deny**]}

Disable IPv6 Source Guard:

disable ip-security ipv6 source-ip-lockdown ports [*port_list* | **all**]

Clear IPv6 Source Guard entries:

clear ip-security ipv6 source-ip-lockdown entries ports [*port_list* | **all**]

Enable Neighbor Discovery Inspection:

enable ip-security {**ipv6**} **nd-inspection source-mac destination-mac ip vlan** *vlan_name* **ports** [*port_list* | **all**] **violation-action drop-packet** {**block-port** [**permanently** | **duration** *duration_in_seconds*]}

Disable Neighbor Discovery Inspection:

disable ip-security {**ipv6**} **nd-inspection** {**vlan**} *vlan_name* **ports** [*port_list* | **all**]

Clear Neighbor Discovery Inspection violations:

clear ip-security {**ipv6**} **nd-inspection violations**

Monitoring

Show RA Guard configuration:

show ip-security {**ipv6**} **ra-guard** {**vlan**} *vlan_name*

Show RA Guard violations:

show ip-security {**ipv6**} **ra-guard violations** {**vlan**} *vlan_name*

Show DHCPv6 snooping configuration for a VLAN:

show ip-security ipv6 dhcp-snooping {**vlan**} *vlan_name*

Show DHCPv6 snooping entries for a VLAN:

show ip-security ipv6 dhcp-snooping entries {**vlan**} *vlan_name*

Show DHCPv6 snooping entries for a list of VLANs:

show ip-security ipv6 dhcp-snooping entries vlan *vlan_list*

Show DHCPv6 snooping violations for a VLAN:

show ip-security ipv6 dhcp-snooping violations {**vlan**} *vlan_name*

Show DHCPv6 snooping violations for a list of VLANs:

show ip-security ipv6 dhcp-snooping violations vlan *vlan_list*

Show IPv6 Source Guard:

show ip-security ipv6 source-ip-lockdown

Show Neighbor Discovery Inspection configuration:

show ip-security {**ipv6**} **nd-inspection** {**vlan**} *vlan_name*

Show Neighbor Discovery Inspection for a list of VLANs:

show ip-security {**ipv6**} **nd-inspection vlan** *vlan_list*

Show Neighbor Discovery Inspection violation count:

show ip-security {**ipv6**} **nd-inspection violations** {**vlan**} *vlan_name* {**ports** [*port_list* | **all**]}

Limitation

In a Layer 2 setup, if IPv4 source IP lockdown is enabled on a port and IPv6 source IP lockdown is not, DHCPv6 snooping does not learn bindings for the clients on that port. To avoid this, also enable IPv6 source IP lockdown on the same ports. Do not enable source IP lockdown on the port that faces the DHCPv6 server.

Supported Platforms

All platforms.

IPv6 Prefixes Exceeding 64 Bits

Version 34.1.1 enables support for IPv6 static routes and connected networks with prefix lengths exceeding 64 bits, accommodating modern IPv6 addressing schemes that require granular subnetting.

Overview: The switch now stores and forwards IPv6 routes with prefix lengths from /64 to /128 in the routing table, allowing more specific route matching and supporting point-to-point links with /127 or /128 prefixes.

Modified CLI Commands

Configure IPv6 static route with /127 prefix:

configure iproute add *vlan vlan* 2001:db8::/127 *nexthop_ip*

Configure IPv6 address on interface with /128 prefix:

configure *vlan vlan* **ipv6** address 2001:db8::1/128

View IPv6 routing table:

show iproute vr vr_name

Supported Platforms

All platforms with IPv6 routing support.

MAC Locking Last Violating MAC Address Clear

Version 34.1.1 adds the ability to clear the last violating MAC address entries from MAC locking violation records without requiring a full system reboot.

Overview: The MAC locking feature restricts port access to specific MAC addresses. When a security violation occurs, the switch increments a violation counter and records the "Last Violating MAC Address" for the affected port. Previously, these records persisted until system reboot, making it difficult for administrators to determine if a violation was historical or recent. Version 34.1.1 allows direct clearing of these records on specific ports.

New CLI Commands

Clear last violating MAC address from specified ports:

```
clear mac-locking last-violating-mac ports port_list
```

Supported Platforms

All platforms with MAC locking support.

NetLogin Client IP Tracking for RADIUS Framed-IP-Address

Version 34.1.1 improves how NetLogin learns and tracks the IP address of an authenticated client. It fills in the RADIUS Framed-IP-Address attribute and tells the RADIUS server whenever the client IP address changes. This works whether or not the client VLAN has an IP address configured.

Overview: NetLogin learns client IP addresses by listening for events from two sources: the node alias module and ARP.

Node alias events: The node alias module notifies NetLogin when:

- A new client with an IP address is added to the node alias table.
- The IP address of an existing client changes.

The node alias table is updated from the traffic the switch receives from the client.

ARP events: When the client VLAN has an IP address configured, the switch adds the client IP address to the ARP table when it receives traffic from the client. NetLogin also receives these ARP updates.

The events that NetLogin relies on depend on how the client VLAN is configured:

- **Client VLAN without an IP address configured (Layer 2 only):** The ARP table is not populated for the client. NetLogin learns the client IP address only from node alias events.
- **Client VLAN with an IP address configured:** NetLogin learns the client IP address from both node alias events and ARP events. Either one can report the IP address first, and NetLogin uses whichever arrives first.

RADIUS Accounting Behavior

When NetLogin receives a client IP address from a node alias or ARP event, it compares that address with the one it already has for the client.

- When the IP address is learned for the first time, NetLogin sends an Accounting Interim-Update to the RADIUS server with the Framed-IP-Address attribute.
- After that, NetLogin sends the Framed-IP-Address in an Accounting Interim-Update only when the client IP address changes.
- If the reported IP address is the same as the stored address, no Interim-Update is sent. This avoids redundant accounting messages to the RADIUS server.

Configuration

Enable node alias on the ports where NetLogin clients are connected:

`enable nodealias ports` *`port_list`*

Node alias learns entries from client traffic only on ports where it is enabled. After it learns an entry, it notifies the NetLogin module of the client IP address.

Supported Platforms

All platforms with NetLogin and node alias support.

Network Zones in ACL Policy Rules

Version 34.1.1 extends ACL policy rules to support both source and destination network zone matching in a single rule, and introduces live refresh of zone membership changes without policy rebinding.

Issue: Previous versions supported only source-zone or destination-zone matching in ACL rules. Policies requiring zone-based restrictions on both source and destination required multiple overlapping rules, reducing policy clarity and increasing management complexity. Additionally, zone membership changes required policy rebinding to take effect.

Resolution: ACL policy rules now accept both `source-zone` and `destination-zone` match conditions in a single rule, expanding to the cross product of zone members. The same zone can be used as both source and destination. Zone membership changes take effect immediately using the refresh command without unbinding policies.

Key Capabilities:

- Single ACL rules match packets based on both source and destination network zones (cross-product expansion: M source members × N destination members)
- Same network zone can be used as both source and destination to match all member-to-member pairs
- Zone membership changes (add/delete members) take effect immediately without policy rebinding

- Zone-based policies replace address-based ACLs for improved maintainability and security
- Supports all standard ACL actions with zone-based matching

Modified CLI Commands

Configure an ACL policy with dual-zone (source and destination) matching:

entry *entry_name* { **if** { **source-zone** *source_zone*; **destination-zone** *destination_zone*; } **then** { **deny** | **permit**; } }

Example: The following example counts traffic from zone1 to zone2. Each zone has two members, so the rule expands to four rules (2 source members × 2 destination members).

Create the zones and add their members:

```
create access-list network-zone zone1
create access-list network-zone zone2
configure access-list network-zone zone1 add ipaddress 10.10.10.1 255.255.255.0
configure access-list network-zone zone1 add ipaddress 20.10.10.1 255.255.255.0
configure access-list network-zone zone2 add ipaddress 30.10.10.5 255.255.255.0
configure access-list network-zone zone2 add ipaddress 40.10.10.5 255.255.255.0
```

Create the policy and its rule:

```
edit policy zonepolicy
entry entry1 {
  if {
    source-zone zone1;
    destination-zone zone2;
  } then {
    count entry1Count;
  }
}
```

Apply the policy to port 10:

```
configure access-list zonepolicy port 10
```

Display the rules that the zone rule expanded to:

```
show access-list port 10 detail
#Policy Entries
#   RuleNo
#   1
entry Cl0:0_30.10.10.5_E1 { if match all {
    destination-address 30.10.10.5/255.255.255.0 ;
    source-address 10.10.10.1/255.255.255.0 ;
} then {
    count entry1Count ;
} }
#   RuleNo
#   2
entry Cl0:0_40.10.10.5_E2 { if match all {
    destination-address 40.10.10.5/255.255.255.0 ;
    source-address 10.10.10.1/255.255.255.0 ;
} then {
    count entry1Count ;
} }
#   RuleNo
```

```
#   3
entry Cl0:0_30.10.10.5_E3 { if match all {
    destination-address 30.10.10.5/255.255.255.0 ;
    source-address 20.10.10.1/255.255.255.0 ;
} then {
    count entry1Count ;
} }
#   RuleNo
#   4
entry Cl0:0_40.10.10.5_E4 { if match all {
    destination-address 40.10.10.5/255.255.255.0 ;
    source-address 20.10.10.1/255.255.255.0 ;
} then {
    count entry1Count ;
} }
```

Example: The following rule blocks all traffic among the members of a single zone, by using the same zone as both source and destination:

```
entry block_internal { if { source-zone internal; destination-zone internal; } then
{ deny; } }
```

Live refresh zone membership for all bound policies:

`refresh access-list network-zone`

Zone members can be added or deleted using existing network-zone commands, then applied immediately with refresh without unbinding policies.

Supported Platforms

All platforms with ACL and policy support. Hardware ACL capacity by platform limits zone sizes usable in dual-zone rules.

OpenLDAP Upgrade to 2.6.12

Version 34.1.1 upgrades OpenLDAP from 2.4.21 to 2.6.12.

Existing LDAP server configurations continue to function without modification. Verify LDAP server compatibility with OpenLDAP 2.6.12 in test environments before upgrading production switches.

Supported Platforms

All platforms.

PQC Algorithms in OpenSSH

Version 34.1.1 integrates post-quantum cryptography (PQC) algorithms into OpenSSH, providing hybrid key exchange methods that resist attacks from quantum computers.

Overview: OpenSSH now supports hybrid post-quantum key exchange algorithms including ML-KEM-768 combined with X25519. These hybrid algorithms maintain compatibility with classical cryptography while adding quantum resistance. The algorithm is used only when the

remote end runs OpenSSH 9.5 or later, or a switch running 34.1.1 or later. Otherwise the session falls back to classical key exchange.

New CLI Commands



Note
By default PQC algorithm is enabled on version 34.1.1.

Enable post-quantum key exchange algorithm:

```
configure ssh2 enable post-quantum kex-algorithm mlkem768x25519-sha256
```

Disable post-quantum key exchange algorithm:

```
configure ssh2 disable post-quantum kex-algorithm mlkem768x25519-sha256
```

Monitoring

View SSH key exchange configuration:

```
show ssh2
```

Supported Platforms

All platforms.

SNMP Interface Pause Frame Counters

Version 34.1.1 adds SNMP MIB support for IEEE 802.3x pause frame counters, enabling network management systems to monitor flow control statistics on physical interfaces.

Overview: The switch implements the `dot3PauseTable` SNMP table from RFC 3635, which provides counters and statistics for IEEE 802.3x flow control (pause) frames transmitted and received on each physical interface. This enables operators to monitor flow control behavior and detect congestion patterns.

Available Counters:

- `dot3PauseAdminMode`: Configured pause frame behavior on the interface
- `dot3PauseOperMode`: Actual operational pause frame behavior
- `dot3InPauseFrames`: Count of pause frames received
- `dot3OutPauseFrames`: Count of pause frames transmitted
- `dot3HCInPauseFrames`: 64-bit count of pause frames received
- `dot3HCOutPauseFrames`: 64-bit count of pause frames transmitted

New CLI Commands

No configuration required. Pause frame counters are automatically available through SNMP queries.

Query pause frame statistics by using SNMP:

```
snmpget -v3 -u username switch_ip \ dot3InPauseFrames.ifindex \
dot3OutPauseFrames.ifindex
```

View pause frame statistics:

```
show flow-control statistics ports port_list
```

Supported Platforms

All platforms with flow control support.

SNMPv3 User Authentication with SHA-2

Version 34.1.1 adds support for SHA-256, SHA-384, and SHA-512 HMAC authentication algorithms in SNMPv3 user authentication, replacing SHA-1 for enhanced security.

Issue: SNMPv3 users were limited to SHA-1 HMAC authentication, which does not meet current security requirements for cryptographic hash functions.

Resolution: The switch now accepts SHA-2 family algorithms (SHA-256, SHA-384, SHA-512) for SNMPv3 user authentication. Users can specify the desired algorithm during user configuration.

Supported Algorithms:

- SHA-1 (for backward compatibility)
- SHA-256 (recommended minimum)
- SHA-384
- SHA-512

Modified CLI Commands

Create SNMPv3 user with SHA-256 authentication:

```
configure snmpv3 user username authentication sha-256 password password
```

Create SNMPv3 user with SHA-512 authentication and privacy:

```
configure snmpv3 user username authentication sha-512 password password
privacy aes-256 privacy-password password
```

View SNMPv3 user authentication algorithm:

```
show snmpv3 user username
```

Migration from SHA-1

Existing SNMPv3 users configured with SHA-1 continue to function. Migrate to SHA-256 or higher by reconfiguring users with the new algorithm and updating NMS systems to use the new algorithm for authentication.

Supported Platforms

All platforms.

Update Time-Zone Information for UTC Changes in Alberta and British Columbia

Version 34.1.1 updates Switch Engine to support time-zone changes in Canada. As of November 2026, the time zone for Alberta permanently stays at UTC-6. The same applies to the Northwest Territories. British Columbia permanently stays at UTC-7.

Overview: These provinces and territories keep a single UTC offset all year, so automatic Daylight Saving Time (DST) changes no longer apply to them.

Configuration

Specify the GMT offset in minutes and disable automatic DST.

Configure the time zone for Alberta or the Northwest Territories (UTC-6):

```
configure timezone -360 noautodst
```

Configure the time zone for British Columbia (UTC-7):

```
configure timezone -420 noautodst
```

Supported Platforms

All platforms.

Updates to Avoid NTP Epocalypse - Y2036 Overflow

Version 34.1.1 updates the operating system (OS) so that Network Time Protocol (NTP) continues to keep correct time after the NTP era rollover in 2036.

Overview: NTP timestamps count seconds since January 1, 1900, in a 32-bit field. The field overflows on February 7, 2036, which can cause systems that rely on it to misread the time. Similar to the Y2038 issue, the OS was investigated for this vulnerability, and the fixes are included in this release.

Supported Platforms

All platforms.

Updates to Avoid Epocalypse - Y2038 Overflow

Version 34.1.1 updates the software to use 64-bit integer time values, avoiding the Year 2038 overflow (also known as Y2038 or the Epochalypse).

Overview: Many systems track time as the number of seconds since January 1, 1970, at 00:00:00 UTC. On older systems, this number is stored in a signed 32-bit integer, which can hold a maximum of 2,147,483,647 seconds. At 03:14:08 UTC on January 19, 2038, the next second exceeds this limit, and the value wraps around to a negative number, which the system interprets as a time in December 1901. All components that use the internal time variable now use a 64-bit value to avoid the overflow.

Supported Platforms

All platforms.

ExtremeCloud IQ Agent Support

This version of ExtremeXOS supports ExtremeCloud IQ. For network administrators looking for unified management of access points, switches, and routers, ExtremeCloud IQ is a cloud-driven network management application that:

- Simplifies network operations through an easy to use and intuitive interface, including minimal touch onboarding of devices.
- Provides ultimate flexibility in deployment choice, cloud platform choice, and OS choice.
- Offers unlimited data duration for more informed networking decisions.

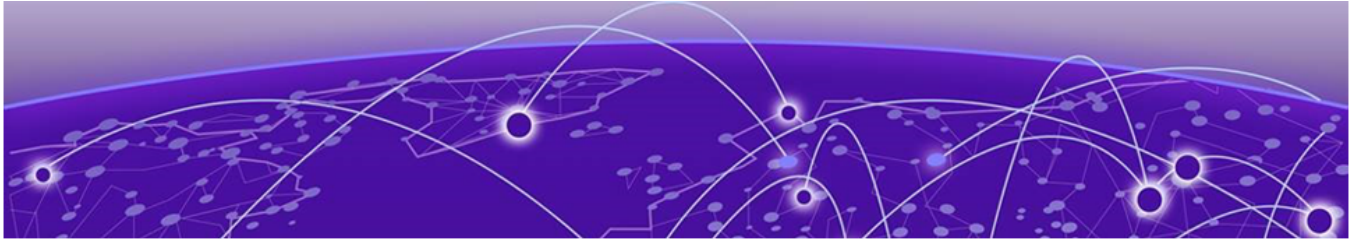
Important
Check the ExtremeCloud IQ release notes to ensure support for your version has been added before upgrading.

This release supports device discovery, basic monitoring, visibility into homogenous stacking, and the ability to configure an optional user-defined virtual router (VR) and server address for ExtremeCloud IQ agent to connect to. These values are used instead of any auto-detected values.

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

Table 6: Supported Platforms

Switch Series	Switch Models
X435	X435-8T-4S X435-8P-4S X435-8P-2T-W X435-24T-4S X435-24P-4S
X465	X465-48P X465-24MU-24W X465-24W X465-48W X465-24MU



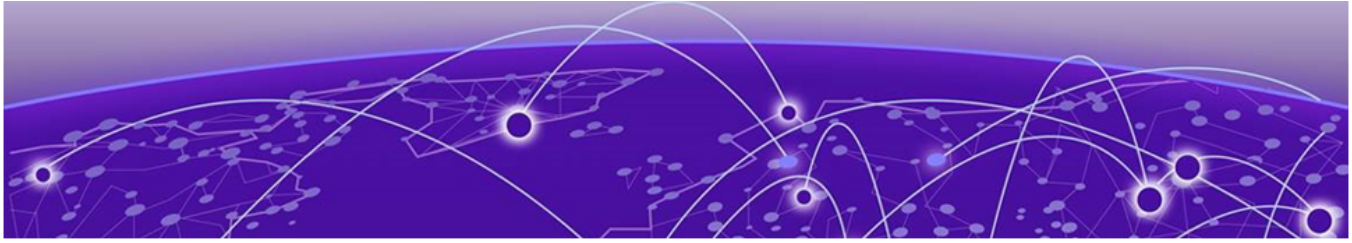
Extreme Hardware/Software Compatibility and Recommendation Matrices

ExtremeXOS and Switch Engine Software Support provides information about the minimum version of ExtremeXOS software required to support switches.

The Extreme Optics Compatibility website displays supported hardware platforms, technical specifications, and usage considerations for pluggable optical devices (transceivers and cables) used in all Extreme Networks operating environments. To access the site, open https://optics.extremenetworks.com/EXOS/ in a web browser.

To find the recommended ExtremeXOS versions for specific hardware platforms, see *ExtremeXOS and Switch Engine Release Recommendations*.

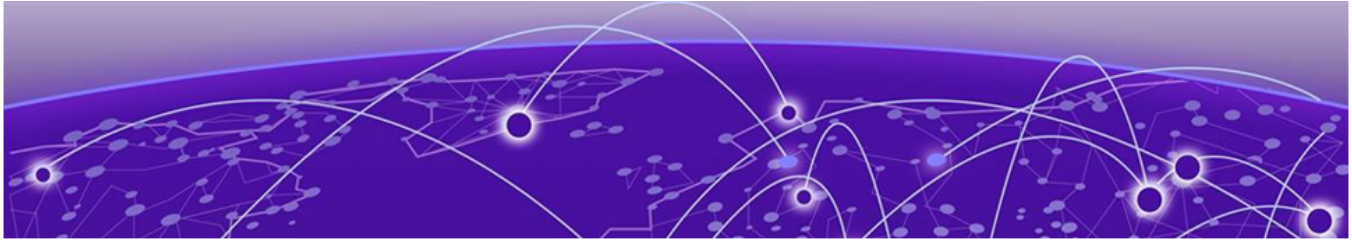
The latest versions of this and other ExtremeXOS guides are at: www.extremenetworks.com/documentation/.



Compatibility with Extreme Management Center

ExtremeXOS is compatible with the version of Extreme Management Center shown in this table: http://emc.extremenetworks.com/content/common/releasenotes/extended_firmware_support.htm.

This version was tested with ExtremeCloud IQ Site Engine versions 25.11.10.48.

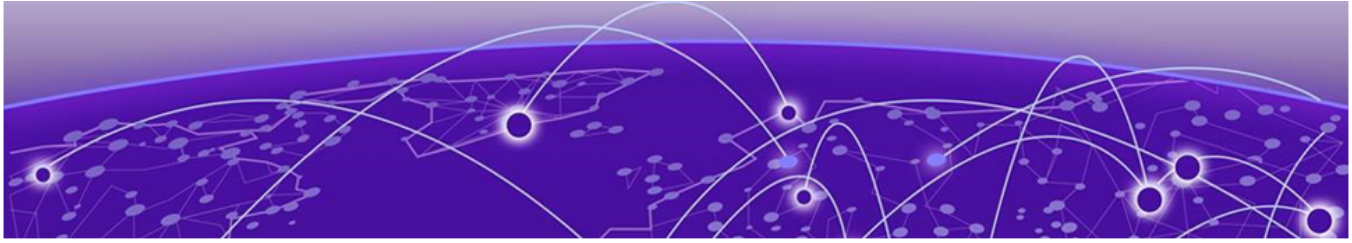


Supported MIBs

The Extreme Networks management information bases (MIBs) are located on the Extreme Portal in the Downloads section. Log in to the Extreme Portal to view and download.

When you provide your serial number or agreement number, the MIBs are available under each release.

For detailed information on which MIBs and SNMP traps are supported, see the *Extreme Networks Proprietary MIBs* and *MIB Support Details* sections in the *ExtremeXOS v34.1.1 User Guide*.



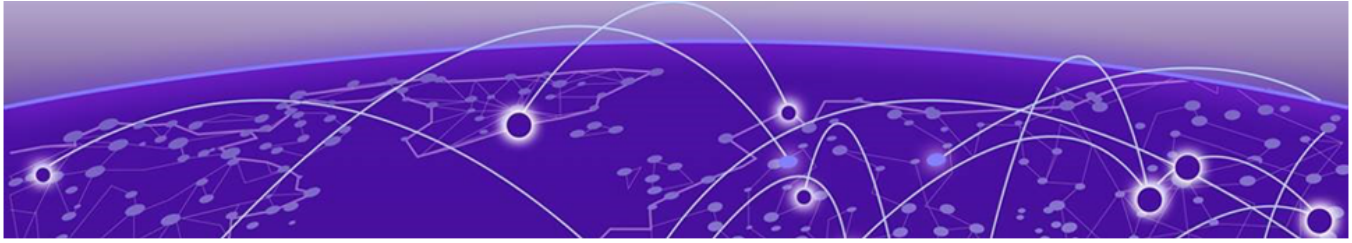
Tested Third-Party Products

The following third-party products have been tested.

Tested RADIUS Servers

The following RADIUS servers are fully tested:

- Microsoft—Internet Authentication Server
- Meetinghouse
- FreeRADIUS



Extreme Switch Security Assessment

DoS Attack Assessment

Tools used to assess DoS attack vulnerability:

- Network Mapper (NMAP)

ICMP Attack Assessment

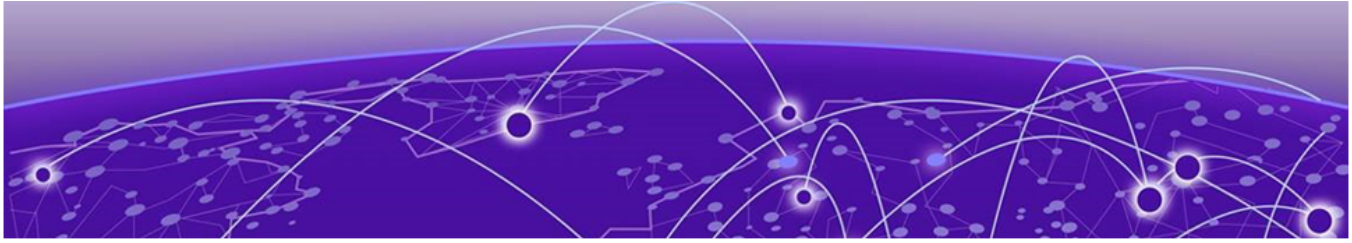
Tools used to assess ICMP attack vulnerability:

- SSPing
- Twinge
- Nuke
- WinFreeze

Port Scan Assessment

Tools used to assess port scan assessment:

- Nessus



Limits

Limits Overview on page 46
Value Edge License Limits on page 47
Edge License Limits on page 60
Advanced Edge License Limits on page 82
Core License Limits on page 90
Notes for Limits Tables on page 95

This chapter summarizes the supported limits in this version of the software.

Limits Overview

The limits data is grouped by license level that contains the associated features:

- Value Edge License Limits on page 47
- Edge License Limits on page 60
- Advanced Edge License Limits on page 82
- Core License Limits on page 90

Non-universal switches include the following license levels:

Switch Category	Switches	Applicable License Levels
Non-universal switches	X435 *, X465, X695	Value Edge *, Edge, Advanced Edge, Core
Note: * The X435 is the only switch that supports the Value Edge license level. **Note:** X440-G2, X450-G2, and X460-G2 are not supported in this version.		

For more information about licenses, see *ExtremeXOS v34.1.1 Licensing Guide*.

The following tables summarize tested metrics for a variety of features, as measured in a per-system basis unless otherwise noted. These limits may change, but represent the current status. The contents of this table supersede any values mentioned in the ExtremeXOS books.

The scaling and performance information shown in the following tables is provided for the purpose of assisting with network design. It is recommended that network architects and administrators design and manage networks with an appropriate level of network scaling "head room." The scaling and performance figures provided have been verified using specific network topologies using limited switch configurations. There is no guarantee that the

scaling and performance figures shown are applicable to all network topologies and switch configurations and are provided as a realistic estimation only. If you experience scaling and performance characteristics that you feel are sufficiently below what has been documented, contact Extreme Networks technical support for additional assistance.

The route limits shown in the following tables for IPv4 and IPv6 routing protocols are software limits only. The actual hardware limits may be higher or lower than the software limits, based on platform. The hardware limits for specific platforms are specified as "IPv4/IPv6 routes (LPM entries in hardware)" in the following tables.

In the architecture, Layer-2, Layer-3, and multicast packet forwarding and filtering operations take place on the controlling bridge. The controlling bridge switch and attached BPEs (V400 Virtual Port Extenders) constitute a single, extended switch system. Therefore, the system assumes the scale and limits from the specific controlling bridge model in use. For applicable limits, see the following tables for the controlling bridge you are using.

Value Edge License Limits

The following table shows supported limits for features in the Value Edge License.

Table 7: Supported Limits for Value Edge License

Metric	Product	Limit
AAA (local)—maximum number of admin and local user accounts.	ExtremeSwitching X435	16
Access lists (meters)—maximum number of meters.	ExtremeSwitching X435	512 ingress
Access lists (policies)—suggested maximum number of lines in a single policy file.	ExtremeSwitching X435	300,000
Access lists (policies)—maximum number of rules in a single policy file.[a]	ExtremeSwitching X435	1,024 ingress
Access lists (slices)—number of ACL slices.	ExtremeSwitching X435	8 ingress only
ACL Per Port Meters—number of meters supported per port.	ExtremeSwitching X435	8
ACL port ranges	ExtremeSwitching X435	32
Meters Packets-Per-Second Capable	ExtremeSwitching X435	Yes
AVB (audio video bridging)—maximum number of active streams.	ExtremeSwitching X435	512
BOOTP/DHCP relay—maximum number of BOOTP or DHCP servers per virtual router.	ExtremeSwitching X435	8

Table 7: Supported Limits for Value Edge License (continued)

Metric	Product	Limit
BOOTP/DHCP relay—maximum number of BOOTP or DHCP servers per VLAN.	ExtremeSwitching X435	8
BOOTP/DHCP relay—maximum number of DHCPv4/v6 relay agents.	ExtremeSwitching X435	30
Connectivity fault management (CFM)—maximum number or CFM domains.	ExtremeSwitching X435	8
CFM—maximum number of CFM associations.	ExtremeSwitching X435	256
CFM—maximum number of CFM up end points.	ExtremeSwitching X435	32
CFM—maximum number of CFM down end points.	ExtremeSwitching X435	32
CFM—maximum number of CFM remote end points per up/down end point.	ExtremeSwitching X435	2,000
CFM—maximum number of dot1ag ports.	ExtremeSwitching X435	128
CFM—maximum number of CFM segments.	ExtremeSwitching X435	1,000
CFM—maximum number of MIPs.	ExtremeSwitching X435	256
DHCPv6 Prefix Delegation Snooping—Maximum number of DHCPv6 prefix delegation snooped entries.	ExtremeSwitching X435	30 (with static routes)
DHCP snooping entries—maximum number of DHCP snooping entries.	ExtremeSwitching X435	30
Dynamic ACLs—maximum number of ACLs processed per second. **Note:** Limits are load-dependent.	ExtremeSwitching X435 with 50 DACLs with 500 DACLs	10 5
EAPS domains—maximum number of EAPS domains.	ExtremeSwitching X435	4
EAPSv1 protected VLANs—maximum number of protected VLANs.	ExtremeSwitching X435	1,000

Table 7: Supported Limits for Value Edge License (continued)

Metric	Product	Limit
ERPS domains—maximum number of ERPS domains with or without CFM configured.	ExtremeSwitching X435	4
ERPSv1 protected VLANs—maximum number of protected VLANs.	ExtremeSwitching X435	1,000
ELSM (vlan-ports)—maximum number of VLAN ports.	ExtremeSwitching X435	2,000
Forwarding rate—maximum L3 software forwarding rate.	ExtremeSwitching X435	7,844 pps
FDB (unicast blackhole entries)—maximum number of unicast blackhole FDB entries.	ExtremeSwitching X435	16,019
FDB (multicast blackhole entries)—maximum number of multicast blackhole FDB entries.	ExtremeSwitching X435	16,384
FDB (maximum L2 entries)—maximum number of MAC addresses.	ExtremeSwitching X435	16,384 [g]
FDB (maximum L2 entries)—maximum number of multicast FDB entries.	ExtremeSwitching X435	512
Identity management—maximum number of Blacklist entries.	ExtremeSwitching X435	512
Identity management—maximum number of Whitelist entries.	ExtremeSwitching X435	512
Identity management—maximum number of roles that can be created.	ExtremeSwitching X435	64
Identity management—maximum role hierarchy depth allowed.	ExtremeSwitching X435	5
Identity management—maximum number of attribute value pairs in a role match criteria.	ExtremeSwitching X435	16
Identity management—maximum number of child roles for a role.	ExtremeSwitching X435	8
Identity management—maximum number of policies/dynamic ACLs that can be configured per role.	ExtremeSwitching X435	8

Table 7: Supported Limits for Value Edge License (continued)

Metric	Product	Limit
Identity management—maximum number of LDAP servers that can be configured.	ExtremeSwitching X435	8
Identity management—maximum number of Kerberos servers that can be configured.	ExtremeSwitching X435	20
Identity management—maximum database memory size.	ExtremeSwitching X435	512
Identity management—recommended number of identities per switch. **Note:** Number of identities per switch is for a default identity management database size (512 Kbytes) across all platforms.	ExtremeSwitching X435	100
Identity management—recommended number of ACL entries per identity. **Note:** Number of ACLs per identity, based on system ACL limitation.	ExtremeSwitching X435	20
Identity management—maximum number of dynamic ACL entries configured as an individual dynamic rule, or as an ACL entry in a policy file.	ExtremeSwitching X435	500
IGMP snooping per VLAN filters—maximum number of VLANs supported in per-VLAN IGMP snooping mode.	ExtremeSwitching X435	500
IGMPv2 subscriber—maximum number of IGMPv2 subscribers per port.[n]	ExtremeSwitching X435	2,500
IGMPv2 subscriber—maximum number of IGMPv2 subscribers per switch.[n]	ExtremeSwitching X435	12,500
IGMPv3 maximum source per group—maximum number of source addresses per group.	ExtremeSwitching X435	250
IGMPv3 subscriber—maximum number of IGMPv3 subscribers per port.[n]	ExtremeSwitching X435	1,000

Table 7: Supported Limits for Value Edge License (continued)

Metric	Product	Limit
IGMPv3 subscriber—maximum number of IGMPv3 subscribers per switch.[n]	ExtremeSwitching X435	10,000
IP ARP entries in software—maximum number of IP ARP entries in software. **Note:** Might be limited by hardware capacity of FDB (maximum L2 entries).	ExtremeSwitching X435	20,424
IPv4 ARP entries in hardware with minimum LPM routes—maximum recommended number of IPv4 ARP entries in hardware, with minimum LPM routes present. Assumes number of IP route reserved entries is 100 or less.	ExtremeSwitching X435	509 [h]
IPv4 ARP entries in hardware with maximum LPM routes—maximum recommended number of IPv4 ARP entries in hardware, with maximum LPM routes present. Assumes number of IP route reserved entries is "maximum."	ExtremeSwitching X435	500 [h]
IPv4 remote hosts in hardware with zero LPM routes—maximum recommended number of IPv4 remote hosts (hosts reachable through a gateway) in hardware when LPM routing is not used. Assumes number of IP route reserved entries is 0, and number of IPv4 ARP entries present is 100 or less.	ExtremeSwitching X435	3,100 [h]
IPv4 routes—maximum number of static IPv4 routes in software (combination of unicast and multicast routes).	ExtremeSwitching X435	32
IPv4 routes (LPM entries in hardware)— number of IPv4 routes in hardware.	ExtremeSwitching X435	32
IPv6 addresses on an interface—maximum number of IPv6 addresses on an interface.	ExtremeSwitching X435	15

Table 7: Supported Limits for Value Edge License (continued)

Metric	Product	Limit
IPv6 addresses on a switch —maximum number of IPv6 addresses on a switch.	ExtremeSwitching X435	15
IPv6 host entries in hardware —maximum number of IPv6 neighbor entries in hardware.	ExtremeSwitching X435	500
IPv6 routes in software—maximum number of static IPv6 routes in software.	ExtremeSwitching X435	16
IPv6 routes (LPM entries in hardware)—maximum number of IPv6 routes in hardware.	ExtremeSwitching X435	16
IP router interfaces—maximum number of VLANs performing IPv4 and/or IPv6 routing. Excludes sub-VLANs.	ExtremeSwitching X435	30
IP unicast static routes —maximum number of permanent IP unicast routes.	ExtremeSwitching X435	32
IP multinetting (secondary IP addresses)—maximum number of secondary IP addresses per VLAN.	ExtremeSwitching X435	30
Jumbo frames—maximum size supported for jumbo frames, including the CRC.	ExtremeSwitching X435	9,216
Layer-2 IPMC forwarding caches—(IGMP/MLD/PIM snooping) in mac-vlan mode. **Note:** • The internal lookup table configuration used is "l2-and-l3". • IPv6 and IPv4 L2 IPMC scaling is the same for this mode. • Layer-2 IPMC forwarding cache limits—(IGMP/MLD/PIM snooping) in mixed-mode are the same.	ExtremeSwitching X435	5,000

Table 7: Supported Limits for Value Edge License (continued)

Metric	Product	Limit
Layer-3 IPv4 Multicast—maximum number of <S,G,V> entries installed in the hardware (IP multicast compression enabled). **Note:** • Limit value is the same for MVR senders, PIM Snooping entries. PIM SSM cache, IGMP senders, PIM cache. • Assumes source-group-vlan mode as look up key. • Layer 3 IPMC cache limit in mixed mode also has the same value.	ExtremeSwitching X435	1,500
Layer-3 IPv6 Multicast—maximum number of <S,G,V> entries installed in the hardware (IP multicast compression enabled). **Note:** • Limit value is the same for MLD sender per switch, PIM IPv6 cache. • Assumes source-group-vlan mode as lookup key.	ExtremeSwitching X435	700
Load sharing—maximum number of load sharing groups. **Note:** The actual number of load-sharing groups that can be configured is limited by the number of physical ports present in the switch or SummitStack.	ExtremeSwitching X435	8
Load sharing—maximum number of ports per load-sharing group.	ExtremeSwitching X435 (standalone only)	8
Logged messages—maximum number of messages logged locally on the system.	ExtremeSwitching X435	20,000
MAC-based security—maximum number of MAC-based security policies.	ExtremeSwitching X435	1,024

Table 7: Supported Limits for Value Edge License (continued)

Metric	Product	Limit
MAC Locking—Maximum number of MAC locking stations that can be learned on a port.	ExtremeSwitching X435	64 (static MAC locking stations) 600 (first arrival MAC locking stations)
Meters—maximum number of meters.	ExtremeSwitching X435	512
Maximum mirroring instances.	ExtremeSwitching X435	1 (egress)
Mirroring (filters)—maximum number of mirroring filters. **Note:** This is the number of filters across all the active mirroring instances.	ExtremeSwitching X435	128
Mirroring, one-to-many (filters)—maximum number of one-to-many mirroring filters. **Note:** This is the number of filters across all the active mirroring instances.	ExtremeSwitching X435	128
Mirroring, one-to-many (monitor port)—maximum number of one-to-many monitor ports.	ExtremeSwitching X435	1
Multicast listener discovery (MLD) snooping per-VLAN filters—maximum number of VLANs supported in per-VLAN MLD snooping mode.	ExtremeSwitching X435	63
Multicast listener discovery (MLD)v1 subscribers—maximum number of MLDv1 subscribers per port.[n]	ExtremeSwitching X435	2,500
Multicast listener discovery (MLD)v1 subscribers—maximum number of MLDv1 subscribers per switch.[n]	ExtremeSwitching X435	12,500
Multicast listener discovery (MLD)v2 subscribers—maximum number of MLDv2 subscribers per port.[n]	ExtremeSwitching X435	2,000
Multicast listener discovery (MLD)v2 subscribers—maximum number of MLDv2 subscribers per switch.[n]	ExtremeSwitching X435	10,000

Table 7: Supported Limits for Value Edge License (continued)

Metric	Product	Limit
Multicast listener discovery (MLD)v2 maximum source per group—maximum number of source addresses per group.	ExtremeSwitching X435	200
Network Login—maximum number of clients being authenticated on MAC-based VLAN enabled ports.	ExtremeSwitching X435	1,024
Network Login—maximum number of dynamic VLANs.	ExtremeSwitching X435	1,024
Network Login VLAN VSAs—maximum number of VLANs a client can be authenticated on at any given time.	ExtremeSwitching X435	10
Network Service Identifiers (NSI)/VLAN mappings—maximum number of VLANs to NSI mappings.	ExtremeSwitching X435	94
ONEPolicy Roles/Profiles—maximum number of policy roles/profiles.	ExtremeSwitching X435	63
ONEPolicy Rules per Role/Profile—maximum number of rules per role/policy.	ExtremeSwitching X435	IPv4 Rules: 128 L2 Rules: 56
ONEPolicy Authenticated Users per Switch—maximum number of authenticated users per switch with TCI-Overwrite disabled. **Note:** The maximum values assume 75% utilization of VLAN-XLATE hash table.	ExtremeSwitching X435	192
ONEPolicy Authenticated Users per Port per Switch — maximum number of authenticated users per port per switch with TCI overwrite disabled. **Note:** The maximum values assume 75% utilization of VLAN-XLATE hash table.	ExtremeSwitching X435	187

Table 7: Supported Limits for Value Edge License (continued)

Metric	Product	Limit
ONEPolicy Permit/Deny Traffic Classification Rules Types—total maximum number of unique permit/deny traffic classification rules types (system/stack).	ExtremeSwitching X435	184
ONEPolicy Permit/Deny Traffic Classification Rules Types—maximum number of unique IPv4 permit/deny traffic classification rules (typesipsource / ipdest / ipfrag / udpsourceportIP / udpdestportIP / tcpsourceportIP / tcpdestportIP / ipttl / iptos / iptype).	ExtremeSwitching X435	128
ONEPolicy Permit/Deny Traffic Classification Rules Types—maximum number of unique Layer 2 permit/deny traffic classification rules (ethertype/port).	ExtremeSwitching X435	56
Policy-based routing (PBR) redundancy—maximum number of flow-redirects.	ExtremeSwitching X435	256 [o]
Policy-based routing (PBR) redundancy—maximum number of next hops per each flow-direct.	ExtremeSwitching X435	32 [o]
Private VLANs—maximum number of subscribers. Assumes a minimum of one port per network and subscriber VLAN.	ExtremeSwitching X435	15
Private VLANs—maximum number of private VLANs with an IP address on the network VLAN. **Note:** This limit is dependent on the maximum number of private VLANs in an L2-only environment if the configuration has tagged and translated ports.	ExtremeSwitching X435	15
Private VLANs—maximum number of private VLANs in an L2-only environment.	ExtremeSwitching X435	15

Table 7: Supported Limits for Value Edge License (continued)

Metric	Product	Limit
Route policies—suggested maximum number of lines in a route policy file.	ExtremeSwitching X435	10,000
Spanning Tree (maximum STPDs)—maximum number of Spanning Tree Domains on port mode EMISTP.	ExtremeSwitching X435	16
Spanning Tree PVST+—maximum number of port mode PVST domains. **Note:** For all platforms, the maximum number of active ports per PVST domain depends on the maximum number of spanning tree ports supported on given platform. For example, on a switch that supports 256 PVST domains (maximum) and 4,096 STP ports (maximum), the maximum number of active ports per PVST domain would be 16 ports (4,096 ÷ 256).	ExtremeSwitching X435	128
Spanning Tree—maximum number of multiple spanning tree instances (MSTI) domains.	ExtremeSwitching X435	16
Spanning Tree—maximum number of VLANs per MSTI. **Note:** Maximum number of 10 active ports per VLAN when all 100 VLANs are in one MSTI.	ExtremeSwitching X435	100
Spanning Tree—maximum number of VLANs on all MSTP instances.	ExtremeSwitching X435	256
Spanning Tree (802.1d domains)—maximum number of 802.1d domains per port.	ExtremeSwitching X435	1
Spanning Tree (number of ports)—maximum number of ports including all Spanning Tree domains.	ExtremeSwitching X435	1,024
Spanning Tree (maximum VLANs)—maximum number of STP-protected VLANs (dot1d and dot1w).	ExtremeSwitching X435	256

Table 7: Supported Limits for Value Edge License (continued)

Metric	Product	Limit
SSH (number of sessions)—maximum number of simultaneous SSH sessions.	ExtremeSwitching X435	8
Static MAC multicast FDB entries—maximum number of permanent multicast MAC entries configured into the FDB.	ExtremeSwitching X435	1,024
Syslog servers—maximum number of simultaneous Syslog servers that are supported.	ExtremeSwitching X435	16
Syslog targets—maximum number of configurable Syslog targets.	ExtremeSwitching X435	16
Telnet (number of sessions)—maximum number of simultaneous Telnet sessions.	ExtremeSwitching X435	8
Virtual routers—maximum number of user-created virtual routers that can be created on a switch.	ExtremeSwitching X435	16 (local-only VRs)
Virtual router forwarding (VRFs)—maximum number of VRFs that can be created on a switch. **Note:** * Subject to other system limitations.	ExtremeSwitching X435	16 (local-only VRFs)
VLAN aggregation—maximum number of port-VLAN combinations on any one superVLAN and all of its subVLANs.	ExtremeSwitching X435	1,000
VLANs—includes all VLANs.	ExtremeSwitching X435	4,094
VLANs (Layer 2)—maximum number of Layer 2 VLANs.	ExtremeSwitching X435	4,094
VLANs (Layer 3)—maximum number of VLANs performing IPv4 and/or IPv6 routing. Excludes sub-VLANs.	ExtremeSwitching X435	IPv4: 30 IPv6: 15
VLANs (maximum active port-based)—maximum active ports per VLAN when 1,000 VLANs are configured with default license.	ExtremeSwitching X435	28

Table 7: Supported Limits for Value Edge License (continued)

Metric	Product	Limit
VLAN Port Interfaces (VPIF)—maximum number of VLAN port interfaces.	ExtremeSwitching X435	4,090
VLANs (maximum active protocol-sensitive filters)—number of simultaneously active protocol filters in the switch.	ExtremeSwitching X435	16
VLAN translation—maximum number of translation VLANs. Assumes a minimum of one port per translation and member VLAN.	ExtremeSwitching X435	15
VLAN translation—maximum number of translation VLAN pairs with an IP address on the translation VLAN. **Note:** This limit is dependent on the maximum number of translation VLAN pairs in an L2-only environment if the configuration includes tagged and translated ports.	ExtremeSwitching X435	15
VLAN translation—maximum number of translation VLAN pairs in an L2-only environment.	ExtremeSwitching X435	15
VMAN CEP—maximum number of CVIDs.	ExtremeSwitching X435	192
XML requests—maximum number of XML requests per second. **Note:** Limits are dependent on load and type of XML request. These values are dynamic ACL data requests.	ExtremeSwitching X435	10 with 100 DACLs

Edge License Limits

The following table shows supported limits for features in the Edge License.

Note
X440-G2, X450-G2, and X460-G2 are not supported in this version.

Table 8: Supported Limits for Edge License

Metric	Product	Limit
AAA (local)—maximum number of admin and local user accounts.	All platforms, except X435	16
Access lists (meters)—maximum number of meters.	ExtremeSwitching X465	2,048 ingress 512 egress
	ExtremeSwitching X695	6,000 ingress 2,000 egress
Access lists (policies)—suggested maximum number of lines in a single policy file.	All platforms, except X435	300,000
Access lists (policies)—maximum number of rules in a single policy file.[a]	ExtremeSwitching X465, X695	8,192 ingress 1,024 egress
Access lists (policies)—maximum number of rules in a single policy file in first stage (VFP).	ExtremeSwitching, X465	2,048 ingress only
	ExtremeSwitching X695	1,024 ingress only
Access lists (slices)—number of ACL slices.	ExtremeSwitching X465, X695	12 ingress 4 egress
Access lists (slices)—number of ACL slices in first stage (VFP).	ExtremeSwitching X465, X695	4 ingress only
ACL Per Port Meters—number of meters supported per port.	ExtremeSwitching, X465, X695	16
ACL port ranges.	ExtremeSwitching, X465, X695	32
Meters Packets-Per-Second Capable.	ExtremeSwitching, X465, X695	Yes
AVB (audio video bridging)—maximum number of active streams.	ExtremeSwitching X465, X695	4,096
BFD sessions (Software Mode)—maximum number of BFD sessions.	ExtremeSwitching, X465, X695 (default timers—1 sec)	512
	ExtremeSwitching, X465, X695 (minimal timers—100 msec)	10[c]

Table 8: Supported Limits for Edge License (continued)

Metric	Product	Limit
BFD IPv4 sessions (Hardware Assisted)—maximum number of IPv4 BFD sessions.	ExtremeSwitching, X465, X695	900 (PTP not enabled) 425 (PTP enabled) 256 (with 3 ms transmit interval)
BFD IPv6 sessions (Hardware Assisted)—maximum number of IPv6 BFD sessions.	ExtremeSwitching, X465, X695	425 (PTP not enabled)
BOOTP/DHCP relay—maximum number of BOOTP or DHCP servers per virtual router.	ExtremeSwitching X465, X695	8
BOOTP/DHCP relay—maximum number of BOOTP or DHCP servers per VLAN.	ExtremeSwitching X465, X695	8
BOOTP/DHCP relay—maximum number of DHCPv4/v6 relay agents	ExtremeSwitching X465, X695	4,000
Connectivity fault management (CFM)—maximum number or CFM domains. **Note:** With Advanced Edge license or higher.	ExtremeSwitching, X465, X695	8
CFM—maximum number of CFM associations. **Note:** With Advanced Edge license or higher.	ExtremeSwitching, X465, X695	256
CFM—maximum number of CFM up end points. **Note:** With Advanced Edge license or higher.	ExtremeSwitching, X465, X695	32
CFM—maximum number of CFM down end points. **Note:** With Advanced Edge license or higher.	ExtremeSwitching, X465, X695	32

Table 8: Supported Limits for Edge License (continued)

Metric	Product	Limit
CFM—maximum number of CFM remote end points per up/down end point. **Note:** With Advanced Edge license or higher.	ExtremeSwitching, X465, X695	2,000
CFM—maximum number of dot1ag ports. **Note:** With Advanced Edge license or higher.	ExtremeSwitching, X465, X695	128
CFM—maximum number of CFM segments. **Note:** With Advanced Edge license or higher.	ExtremeSwitching, X465, X695	1,000
CFM—maximum number of MIPs. **Note:** With Advanced Edge license or higher.	ExtremeSwitching, X465, X695	256
CLEAR-Flow—total number of rules supported. The ACL rules plus CLEAR-Flow rules must be less than the total number of supported ACLs.	ExtremeSwitching X465, X695	8,192
Data Center Bridging eXchange (DCBX) protocol Type Length Value (TLVs)—maximum number of DCBX application TLVs.	ExtremeSwitching, X465, X695	8
DHCPv6 Prefix Delegation Snooping—Maximum number of DHCPv6 prefix delegation snooped entries.	ExtremeSwitching, X465, X695	256 (with underlying protocol RIPng) 128 (with underlying protocol OSPFv3) 1,024 (with static routes)
DHCP snooping entries—maximum number of DHCP snooping entries.	ExtremeSwitching, X465, X695	2,048
Dynamic ACLs—maximum number of ACLs processed per second. **Note:** Limits are load-dependent.	ExtremeSwitching, X465, X695 with 50 DACLs with 500 DACLs	 10 5

Table 8: Supported Limits for Edge License (continued)

Metric	Product	Limit
EAPS domains—maximum number of EAPS domains. **Note:** An EAPS ring that is being spatially reused cannot have more than four configured EAPS domains. **Note:** You can increase the number of domains by upgrading to the Advanced Edge license.	ExtremeSwitching, X465, X695	4
EAPSv1 protected VLANs—maximum number of protected VLANs.	ExtremeSwitching X465, X695	2,000
ERPS domains—maximum number of ERPS domains with or without CFM configured. **Note:** You can increase the number of domains by upgrading to the Advanced Edge license.	ExtremeSwitching, X465, X695	4
ERPSv1 protected VLANs—maximum number of protected VLANs.	ExtremeSwitching X465, X695	2,000
ERPSv2 protected VLANs—maximum number of protected VLANs.	ExtremeSwitching, X465, X695	2,000
ELSM (vlan-ports)—maximum number of VLAN ports.	ExtremeSwitching, X465, X695	5,000
Extended Edge Switching maximum BPEs—maximum number of attached bridge port extenders (BPEs).	ExtremeSwitching X465	48
Extended Edge Switching maximum cascade ports—maximum number of upstream ports on bridge port extenders (BPEs).	ExtremeSwitching X465	2 on V400-24 and V300 models 4 on V400-48 models
Extended Edge Switching maximum tiers—maximum number of cascade levels (tiers) of bridge port extenders (BPEs).	ExtremeSwitching X465	4 (except for V300-8P-2T-W, which support 1 tier)

Table 8: Supported Limits for Edge License (continued)

Metric	Product	Limit
Extended Edge Switching maximum ring BPEs—maximum number of bridge port extenders (BPEs) in a ring topology.	ExtremeSwitching X465	8
Extended Edge Switching maximum VLANs—maximum number of VLANs - Includes all VLANs	ExtremeSwitching X465	4,094
Extended Edge Switching VLAN+ port memberships—maximum number of VLAN+ (extended) port memberships.	ExtremeSwitching X465	12,000 in hash mode (default) 131,000 in port-group mode
Forwarding rate—maximum L3 software forwarding rate.	ExtremeSwitching X465	28,497 pps
	ExtremeSwitching X695	34,813 pps
FDB (unicast blackhole entries)—maximum number of unicast blackhole FDB entries.	ExtremeSwitching X465	278,528 [f]
	ExtremeSwitching X695	294,912 [f]
FDB (multicast blackhole entries)—maximum number of multicast blackhole FDB entries.	ExtremeSwitching X465, X695	4,096
FDB (maximum L2 entries)—maximum number of MAC addresses.	ExtremeSwitching X465	278,528 [g]
	ExtremeSwitching X695	294,912 [g]
FDB (maximum L2 entries)—maximum number of multicast FDB entries.	ExtremeSwitching X465, X695	4,096
Identity management—maximum number of Blacklist entries.	ExtremeSwitching, X465, X695	512
Identity management—maximum number of Whitelist entries.	ExtremeSwitching, X465, X695	512
Identity management—maximum number of roles that can be created.	ExtremeSwitching, X465, X695	64
Identity management—maximum role hierarchy depth allowed.	ExtremeSwitching, X465, X695	5
Identity management—maximum number of attribute value pairs in a role match criteria.	ExtremeSwitching, X465, X695	16

Table 8: Supported Limits for Edge License (continued)

Metric	Product	Limit
Identity management—maximum number of child roles for a role.	ExtremeSwitching, X465, X695	8
Identity management—maximum number of policies/dynamic ACLs that can be configured per role.	ExtremeSwitching, X465, X695	8
Identity management—maximum number of LDAP servers that can be configured.	ExtremeSwitching, X465, X695	8
Identity management—maximum number of Kerberos servers that can be configured.	ExtremeSwitching, X465, X695	20
Identity management—maximum database memory size.	ExtremeSwitching, X465, X695	512
Identity management—recommended number of identities per switch. **Note:** Number of identities per switch is for a default identity management database size (512 Kbytes) across all platforms.	ExtremeSwitching, X465, X695	100
Identity management—recommended number of ACL entries per identity. **Note:** Number of ACLs per identity, based on system ACL limitation.	ExtremeSwitching, X465, X695	20
Identity management—maximum number of dynamic ACL entries configured as an individual dynamic rule, or as an ACL entry in a policy file.	ExtremeSwitching, X465, X695	500
IGMP snooping per VLAN filters—maximum number of VLANs supported in per-VLAN IGMP snooping mode.	ExtremeSwitching X695	1,500
	ExtremeSwitching X465	4,000

Table 8: Supported Limits for Edge License (continued)

Metric	Product	Limit
IGMPv1/v2 SSM-map entries—maximum number of IGMPv1/v2 SSM mapping entries.	ExtremeSwitching, X465, X695	500
IGMPv1/v2 SSM-map entries—maximum number of sources per group in IGMPv1/v2 SSM mapping entries.	ExtremeSwitching, X465, X695	50
IGMPv2 subscriber—maximum number of IGMPv2 subscribers per port.[n]	ExtremeSwitching X465, X695	4,000
IGMPv2 subscriber—maximum number of IGMPv2 subscribers per switch.[n]	ExtremeSwitching X465, X695	45,000
IGMPv3 maximum source per group—maximum number of source addresses per group.	ExtremeSwitching, X465, X695	250
IGMPv3 subscriber—maximum number of IGMPv3 subscribers per port.[n]	ExtremeSwitching, X465, X695	4,000
IGMPv3 subscriber—maximum number of IGMPv3 subscribers per switch.[n]	ExtremeSwitching X465, X695	45,000
IP ARP entries in software—maximum number of IP ARP entries in software. **Note:** Might be limited by hardware capacity of FDB (maximum L2 entries).	ExtremeSwitching X465 ExtremeSwitching X695	157,694 (up to) [h] 184,318 (up to) [h]
IPv4 ARP entries in hardware with minimum LPM routes—maximum recommended number of IPv4 ARP entries in hardware, with minimum LPM routes present. Assumes number of IP route reserved entries is 100 or less.	ExtremeSwitching X465 ExtremeSwitching X695	119,000 (up to) [h] 146,000 (up to) [h]

Table 8: Supported Limits for Edge License (continued)

Metric	Product	Limit
IPv4 ARP entries in hardware with maximum LPM routes—maximum recommended number of IPv4 ARP entries in hardware, with maximum LPM routes present. Assumes number of IP route reserved entries is "maximum."	ExtremeSwitching X465 ExtremeSwitching X695	109,000 (up to) [h] 125,000 (up to) [h]
IP flow information export (IPFIX)—number of simultaneous flows.	ExtremeSwitching, X465, X695	N/A
IPv4 remote hosts in hardware with zero LPM routes—maximum recommended number of IPv4 remote hosts (hosts reachable through a gateway) in hardware when LPM routing is not used. Assumes number of IP route reserved entries is 0, and number of IPv4 ARP entries present is 100 or less.	ExtremeSwitching X465 ExtremeSwitching X695	216,000 (up to) [h] 241,000 (up to) [h]
IPv4 routes—maximum number of IPv4 routes in software (combination of unicast and multicast routes), including static and from all routing protocols.	ExtremeSwitching X465, X695	131,000
IPv4 routes (LPM entries in hardware)— number of IPv4 routes in hardware.	ExtremeSwitching X465, X695	131,000 [q]
IPv6 6in4 tunnel—maximum number of IPv6 6in4 tunnels.	ExtremeSwitching X465, X695	255
IPv6 6to4 tunnel—maximum number of IPv6 6to4 tunnels.	ExtremeSwitching, X465, X695	1 (per virtual router)
IPv6 addresses on an interface—maximum number of IPv6 addresses on an interface.	ExtremeSwitching, X465, X695	255
IPv6 addresses on a switch—maximum number of IPv6 addresses on a switch.	ExtremeSwitching, X465, X695	2,048
IPv6 host entries in hardware—maximum number of IPv6 neighbor entries in hardware.	ExtremeSwitching X465 ExtremeSwitching X695	24,500 [s] 57,000 [h]

Table 8: Supported Limits for Edge License (continued)

Metric	Product	Limit
IPv6 routes in software—maximum number of IPv6 routes in software, including static routes and routes from all routing protocols.	ExtremeSwitching X465, X695	65,000 [q]
IPv6 routes (LPM entries in hardware)—maximum number of IPv6 routes in hardware.	ExtremeSwitching X465, X695	65,000 [q]
IPv6 routes with a mask greater than 64 bits in hardware—maximum number of such IPv6 LPM routes in hardware.	ExtremeSwitching X465, X695	8,192 [r]
IPv6 route sharing in hardware—route mask lengths for which ECMP is supported in hardware.	ExtremeSwitching X465, X695	0–128 [r]
IP router interfaces—maximum number of VLANs performing IPv4 and/or IPv6 routing. Excludes sub-VLANs.	ExtremeSwitching, X465, X695	2,048
IP multicast static routes—maximum number of permanent multicast IP routes.	ExtremeSwitching, X465, X695	1,024
IP unicast static routes—maximum number of permanent IP unicast routes.	ExtremeSwitching, X465, X695	1,024
IP route sharing (maximum gateways)—Configurable maximum number of gateways used by equal cost multipath OSPF, BGP, IS-IS, static routes, or L2VPNs. Static routes, OSPF, and BGP are limited to 64 ECMP gateways per destination, while IS-IS is limited to 8. L2VPNs are limited to 16 LSPs per pseudowire on platforms that support 32 gateways, and 64 LSPs per pseudowire on platforms that support 64 gateways.	ExtremeSwitching, X465, X695	2, 4, 8, 16, 32, or 64

Table 8: Supported Limits for Edge License (continued)

Metric	Product	Limit
IP route sharing (total combinations of gateway sets)—maximum number of combinations of sets of adjacent gateways used by multipath OSPF, BGP, IS-IS, or static routes.	if maximum gateways is 2 if maximum gateways is 4 if maximum gateways is 8 if maximum gateways is 16 (default) if maximum gateways is 32 if maximum gateways is 64	1,022 1,022 510 254 126 62
	ExtremeSwitching X465, X695 if maximum gateways is 2 if maximum gateways is 4 if maximum gateways is 8 if maximum gateways is 16 (default) if maximum gateways is 32 if maximum gateways is 64 **Note:** The values here represent the maximum attainable ECMP groups of which, due to the RIOT feature, half are reserved for overlay and half for underlay routing. For more information about RIOT, see *ExtremeXOS v34.1.1 User Guide*.	 4,094 4,094 2,046 1,022 510 254
	if maximum gateways is 2 if maximum gateways is 4 if maximum gateways is 8 if maximum gateways is 16 (default) if maximum gateways is 32 if maximum gateways is 64	2,046 2,046 2,046 1,022 510 254
IP multinetting (secondary IP addresses)—maximum number of secondary IP addresses per VLAN.	ExtremeSwitching, X465, X695	255
Jumbo frames—maximum size supported for jumbo frames, including the CRC.	ExtremeSwitching, X465, X695	9,216

Table 8: Supported Limits for Edge License (continued)

Metric	Product	Limit
Layer-2 IPMC forwarding caches—(IGMP/MLD/PIM snooping) in mac-vlan mode. **Note:** • The internal lookup table configuration used is "l2-and-l3". • IPv6 and IPv4 L2 IPMC scaling is the same for this mode. • Layer-2 IPMC forwarding cache limits—(IGMP/MLD/PIM snooping) in mixed-mode are the same.	ExtremeSwitching X695	73,000
	ExtremeSwitching X465	67,000
Layer-3 IPv4 Multicast—maximum number of <S,G,V> entries installed in the hardware (IP multicast compression enabled). **Note:** • Limit value is the same for MVR senders, PIM Snooping entries. PIM SSM cache, IGMP senders, PIM cache. • Assumes source-group-vlan mode as look up key. • Layer 3 IPMC cache limit in mixed mode also has the same value.	ExtremeSwitching X465	93,000
	ExtremeSwitching X695	104,000
Layer-3 IPv6 Multicast—maximum number of <S,G,V> entries installed in the hardware (IP multicast compression enabled). **Note:** • Limit value is the same for MLD sender per switch, PIM IPv6 cache. • Assumes source-group-vlan mode as lookup key.	ExtremeSwitching X465	48,000
	ExtremeSwitching X695	52,000

Table 8: Supported Limits for Edge License (continued)

Metric	Product	Limit
Load sharing—maximum number of load sharing groups. **Note:** The actual number of load-sharing groups that can be configured is limited by the number of physical ports present in the switch or SummitStack.	ExtremeSwitching, X465, X695	128
Load sharing—maximum number of ports per load-sharing group.	For standalone: ExtremeSwitching, X465, X695 For stacked: ExtremeSwitching, X465, X695	32 64
Logged messages—maximum number of messages logged locally on the system.	ExtremeSwitching, X465, X695	20,000
MAC-based security—maximum number of MAC-based security policies.	ExtremeSwitching, X465, X695	1,024
MAC Locking—Maximum number of MAC locking stations that can be learned on a port.	ExtremeSwitching, X465, X695	64 (static MAC locking stations) 600 (first arrival MAC locking stations)
Meters—maximum number of meters supported.	ExtremeSwitching, X465, X695	2,048

Table 8: Supported Limits for Edge License (continued)

Metric	Product	Limit
Maximum mirroring instances.	ExtremeSwitching, X465, X695 **Note:** Only two or four mirroring instances will be active at a time, depending on the mirroring filter added to it. There are four hardware resource slots. Each single instance uses one such slot, while each ingress plus egress instance uses two slots. You can use a total of four slots, while there are no more than two egress instances. The maximum possible combination for mirroring instances: 1. 4 ingress 2. 3 ingress + 1 egress 3. 2 ingress + 2 egress 4. 2 (ingress + egress) 5. 1 (ingress + egress) + 2 ingress 6. 1 (ingress + egress) + 1 egress + 1 ingress	16 (including default mirroring instance)
Mirroring (filters)—maximum number of mirroring filters. **Note:** This is the number of filters across all the active mirroring instances.	ExtremeSwitching, X465, X695	128
Mirroring, one-to-many (filters)—maximum number of one-to-many mirroring filters. **Note:** This is the number of filters across all the active mirroring instances.	ExtremeSwitching, X465, X695	128
Mirroring, one-to-many (monitor port)—maximum number of one-to-many monitor ports.	ExtremeSwitching, X465, X695	16

Table 8: Supported Limits for Edge License (continued)

Metric	Product	Limit
MLAG ports—maximum number of MLAG ports allowed. **Note:** The number of MLAG ports that can be configured is limited by the number of physical ports present in the system.	ExtremeSwitching X695	61
	ExtremeSwitching X465	55
	Stacking	480
MLAG peers—maximum number of MLAG peers allowed.	ExtremeSwitching, X465, X695	2
Multicast listener discovery (MLD) snooping per-VLAN filters—maximum number of VLANs supported in per-VLAN MLD snooping mode.	ExtremeSwitching X465, X695	1,500
Multicast listener discovery (MLD)v1 subscribers—maximum number of MLDv1 subscribers per port.[n]	ExtremeSwitching X465, X695	4,000
Multicast listener discovery (MLD)v1 subscribers—maximum number of MLDv1 subscribers per switch.[n]	ExtremeSwitching X465, X695	45,000
Multicast listener discovery (MLD)v2 subscribers—maximum number of MLDv2 subscribers per port.[n]	ExtremeSwitching X465, X695	4,000
Multicast listener discovery (MLD)v2 subscribers—maximum number of MLDv2 subscribers per switch.[n]	ExtremeSwitching X465, X695	45,000
Multicast listener discovery (MLD)v2 maximum source per group—maximum number of source addresses per group.	ExtremeSwitching, X465, X695	200
Multicast listener discovery (MLD) SSM-map entries—maximum number of MLD SSM mapping entries.	ExtremeSwitching, X465, X695	500

Table 8: Supported Limits for Edge License (continued)

Metric	Product	Limit
Multicast listener discovery (MLD) SSM-MAP entries—maximum number of sources per group in MLD SSM mapping entries.	ExtremeSwitching, X465, X695	50
Network Login—maximum number of clients being authenticated on MAC-based VLAN enabled ports.	ExtremeSwitching, X465, X695	1,024
Network Login—maximum number of clients being authenticated with policy mode enabled with TCI overwrite enabled.	ExtremeSwitching, X465 ExtremeSwitching X695	1,024 512
Network Login—maximum number of dynamic VLANs.	ExtremeSwitching, X465, X695	2,000
Network Login VLAN VSAs—maximum number of VLANs a client can be authenticated on at any given time.	ExtremeSwitching, X465, X695	10
Network Service Identifiers (NSI)/VLAN mappings—maximum number of VLANs to NSI mappings.	ExtremeSwitching, X465, X695	94
Network Address Translation (NAT) VLANs—maximum number of NAT VLANs.	ExtremeSwitching X465, X695	4
Network Address Translation (NAT) Sessions—number of NAT sessions supported (non twice-NAT).	ExtremeSwitching X465, X695	1,023
Node Alias—maximum number of entries per slot.	ExtremeSwitching, X465, X695	8,192
ONEPolicy Dynamic ACL Rules—maximum number of Dynamic ACLs supported via RADIUS VSA 232 per user in Access-List mode.	ExtremeSwitching, X465, X695	64
ONEPolicy Roles/Profiles—maximum number of policy roles/profiles.	ExtremeSwitching, X465, X695	63
ONEPolicy Rules per Role/Profile—maximum number of rules per role/policy.	ExtremeSwitching X465, X695	IPv4 Rules: 512 IPv6 Rules: 512 MAC Rules: 512 L2 Rules: 440

Table 8: Supported Limits for Edge License (continued)

Metric	Product	Limit
ONEPolicy Authenticated Users per Switch—maximum number of authenticated users per switch only with TCI-Overwrite enabled.	ExtremeSwitching, X465	1,024
	ExtremeSwitching X695	512
	Stacking	Depends on the stack nodes, but the maximum is 65,535.
ONEPolicy Authenticated Users per Switch—maximum number of authenticated users per switch with TCI-Overwrite disabled. **Note:** The maximum values assume 75% utilization of VLAN-XLATE hash table.	X465	24,576
	ExtremeSwitching X695	12,288
	Stacking	1,536–65,534
ONEPolicy Authenticated Users per Port per Switch — maximum number of authenticated users per port per switch with TCI overwrite disabled. **Note:** The maximum values assume 75% utilization of VLAN-XLATE hash table.	ExtremeSwitching X695	12,288
	ExtremeSwitching X465	24,576
ONEPolicy Authenticated Users per Port per Switch — maximum number of authenticated users per port with only with TCI-Overwrite enabled.	ExtremeSwitching, X465	1,024
	ExtremeSwitching X695	512
ONEPolicy Permit/Deny Traffic Classification Rules Types—total maximum number of unique permit/deny traffic classification rules types (system/stack).	ExtremeSwitching X465, X695	1,976
ONEPolicy Permit/Deny Traffic Classification Rules Types—maximum number of unique MAC permit/deny traffic classification rules types (macsource/macdest).	ExtremeSwitching X465, X695	512

Table 8: Supported Limits for Edge License (continued)

Metric	Product	Limit
ONEPolicy Permit/Deny Traffic Classification Rules Types—maximum number of unique IPv6 permit/deny traffic classification rules types (ipv6dest).	ExtremeSwitching X465, X695	512
ONEPolicy Permit/Deny Traffic Classification Rules Types—maximum number of unique IPv4 permit/deny traffic classification rules (typesipsource / ipdest / ipfrag / udpsourceportIP / udpdestportIP / tcpsourceportIP / tcpdestportIP / ipttl / iptos / iptype).	ExtremeSwitching X465, X695	512
ONEPolicy Permit/Deny Traffic Classification Rules Types—maximum number of unique Layer 2 permit/deny traffic classification rules (ethertype/port).	ExtremeSwitching X465, X695	440
OnePolicy Maximum number of rules supported in AccessList mode—maximum number of rules in AcessList mode.	ExtremeSwitching X695 ExtremeSwitching X435	3,512 440
Policy-based routing (PBR) redundancy—maximum number of flow-redirects.	ExtremeSwitching, X465, X695	256 [o]
Policy-based routing (PBR) redundancy—maximum number of next hops per each flow-direct.	ExtremeSwitching, X465, X695	32 [o]
Private VLANs—maximum number of subscribers. Assumes a minimum of one port per network and subscriber VLAN.	ExtremeSwitching X695 ExtremeSwitching X465	71

Table 8: Supported Limits for Edge License (continued)

Metric	Product	Limit
Private VLANs—maximum number of private VLANs with an IP address on the network VLAN. **Note:** This limit is dependent on the maximum number of private VLANs in an L2-only environment if the configuration has tagged and translated ports.	ExtremeSwitching, X465, X695	1,024
Private VLANs—maximum number of private VLANs in an L2-only environment.	ExtremeSwitching, X465, X695	1,280
Route policies—suggested maximum number of lines in a route policy file.	ExtremeSwitching, X465, X695	10,000
RIP Learned Routes—maximum number of RIP routes supported without aggregation.	ExtremeSwitching X465, X695	10,000
RIP interfaces on a single router—recommended maximum number of RIP routed interfaces on a switch.	ExtremeSwitching, X465, X695	256
RIPng learned routes—maximum number of RIPng routes.	ExtremeSwitching, X465, X695	3,000
Spanning Tree (maximum STPDs)—maximum number of Spanning Tree Domains on port mode EMISTP.	ExtremeSwitching X465, X695	64

Table 8: Supported Limits for Edge License (continued)

Metric	Product	Limit
Spanning Tree PVST+—maximum number of port mode PVST domains. **Note:** For all platforms, the maximum number of active ports per PVST domain depends on the maximum number of spanning tree ports supported on given platform. For example, on a switch that supports 256 PVST domains (maximum) and 4,096 STP ports (maximum), the maximum number of active ports per PVST domain would be 16 ports (4,096 ÷ 256).	ExtremeSwitching X465, X695	384
Spanning Tree—maximum number of multiple spanning tree instances (MSTI) domains.	ExtremeSwitching, X465, X695	64
Spanning Tree—maximum number of VLANs per MSTI. **Note:** Maximum number of 10 active ports per VLAN when all 500 VLANs are in one MSTI.	ExtremeSwitching, X465, X695	600
Spanning Tree—maximum number of VLANs on all MSTP instances.	ExtremeSwitching, X465, X695	1,024
Spanning Tree (802.1d domains)—maximum number of 802.1d domains per port.	ExtremeSwitching, X465, X695	1
Spanning Tree (number of ports)—maximum number of ports including all Spanning Tree domains.	ExtremeSwitching, X465, X695	4,096
Spanning Tree (maximum VLANs)—maximum number of STP-protected VLANs (dot1d and dot1w).	ExtremeSwitching, X465, X695	1,024
SSH (number of sessions)—maximum number of simultaneous SSH sessions.	ExtremeSwitching, X465, X695	8

Table 8: Supported Limits for Edge License (continued)

Metric	Product	Limit
Static MAC multicast FDB entries—maximum number of permanent multicast MAC entries configured into the FDB.	ExtremeSwitching, X465, X695	1,024
Syslog servers—maximum number of simultaneous Syslog servers that are supported.	ExtremeSwitching, X465, X695	16
Syslog targets—maximum number of configurable Syslog targets.	ExtremeSwitching, X465, X695	16
Telnet (number of sessions)—maximum number of simultaneous Telnet sessions.	ExtremeSwitching, X465, X695	8
Virtual routers—maximum number of user-created virtual routers that can be created on a switch.	ExtremeSwitching, X465, X695	63
Virtual router forwarding (VRFs)—maximum number of VRFs that can be created on a switch. **Note:** * Subject to other system limitations.	ExtremeSwitching, X465, X695	960 *
Virtual router protocols per VR—maximum number of routing protocols per VR.	ExtremeSwitching, X465, X695	8
Virtual router protocols per switch—maximum number of VR protocols per switch.	ExtremeSwitching, X465, X695	64
VLAN aggregation—maximum number of port-VLAN combinations on any one superVLAN and all of its subVLANs.	ExtremeSwitching, X465, X695	1,000
VLANs—includes all VLANs. **Note:** Only 4,092 user-configurable VLANs are supported. (VLAN 1 is the default VLAN, and 4,095 is the management VLAN, and you may not configure them.)	ExtremeSwitching, X465, X695	4,094

Table 8: Supported Limits for Edge License (continued)

Metric	Product	Limit
VLANs (Layer 2)—maximum number of Layer 2 VLANs.	ExtremeSwitching X465, X695	4,094
VLANs (Layer 3)—maximum number of VLANs performing IPv4 and/or IPv6 routing. Excludes sub-VLANs.	ExtremeSwitching X465, X695	2,048
VLAN Port Interfaces (VPIF)—maximum number of VLAN port interfaces.	ExtremeSwitching X465, X695	131,585
VLANs (maximum active port-based)—maximum active ports per VLAN when 4,094 VLANs are configured with the default license.	ExtremeSwitching X465, X695	32
VLANs (maximum active protocol-sensitive filters)—number of simultaneously active protocol filters in the switch.	ExtremeSwitching, X465, X695	16
VLAN translation—maximum number of translation VLANs. Assumes a minimum of one port per translation and member VLAN.	ExtremeSwitching X695 X465	71
VLAN translation—maximum number of translation VLAN pairs with an IP address on the translation VLAN. **Note:** This limit is dependent on the maximum number of translation VLAN pairs in an L2-only environment if the configuration includes tagged and translated ports.	ExtremeSwitching X465, X695	1,024
VLAN translation—maximum number of translation VLAN pairs in an L2-only environment.	ExtremeSwitching, X465, X695	2,046
VMAN CEP—maximum number of CVIDs. **Note:** With 75% hash table utilization.	ExtremeSwitching X465	24,000

Table 8: Supported Limits for Edge License (continued)

Metric	Product	Limit
XML requests—maximum number of XML requests per second. **Note:** Limits are dependent on load and type of XML request. These values are dynamic ACL data requests.	ExtremeSwitching, X465, X695	10 with 100 DACLs
XNV authentication—maximum number of VMs that can be processed (combination of local and network VMs).	ExtremeSwitching, X465, X695	2,048
XNV database entries—maximum number of VM database entries (combination of local and network VMs).	ExtremeSwitching, X465, X695	16,000
XNV database entries—maximum number of VPP database entries (combination of local and network VPPs).	ExtremeSwitching, X465, X695	2,048
XNV dynamic VLAN—Maximum number of dynamic VLANs created (from VPPs /local VMs).	ExtremeSwitching, X465, X695	2,048
XNV local VPPs—maximum number of XNV local VPPs.	ExtremeSwitching, X465, X695	2,048 ingress 512 egress
XNV policies/dynamic ACLs—maximum number of policies/dynamic ACLs that can be configured per VPP.	ExtremeSwitching, X465, X695	8 ingress 4 egress
XNV network VPPs—maximum number of XNV network VPPs.[p]	ExtremeSwitching, X465, X695	2,048 ingress 512 egress

Advanced Edge License Limits

The following table shows supported limits for features in the Advanced Edge License.

Note
X440-G2, X450-G2, and X460-G2 are not supported in this version.

Table 9: Supported Limits for Advanced Edge License

Metric	Product	Limit
BGP auto-peering—maximum number of auto-peering nodes and VTEPs.	ExtremeSwitching, X465, X695	64
BGP auto-peering attached IPv4 hosts— maximum number of attached IPv4 hosts.	ExtremeSwitching, X465, X695	64,000
BGP auto-peering attached IPv6 hosts— maximum number of attached IPv6 hosts.	ExtremeSwitching, X465, X695	8,000
BGP auto-peering ECMP—maximum number of equal cost multipath for auto-peering. **Note:** * Subject to the limitation imposed by the number of physical ports on a switch.	ExtremeSwitching, X465, X695	16*
BGP auto-peering maximum IPv4 prefixes with ECMP—Maximum number of IPv4 Network prefixes with ECMP.	ExtremeSwitching, X465, X695	64,000
BGP auto-peering maximum IPv6 prefixes with ECMP—Maximum number of IPv6 Network prefixes with ECMP.	ExtremeSwitching, X465, X695	8,000
BGP auto-peering MLAG peers—maximum MLAG peers per AutoBGP node.	ExtremeSwitching, X465, X695	1
BGP auto-peering VRFs—maximum number of VRFs.	ExtremeSwitching, X465, X695	64
BGP auto-peering EVPN instances—maximum EVPN instances.	ExtremeSwitching, X465, X695	1,024
EAPS domains—maximum number of EAPS domains. **Note:** An EAPS ring that is being spatially reused cannot have more than four configured EAPS domains.	ExtremeSwitching, X465, X695	128

Table 9: Supported Limits for Advanced Edge License (continued)

Metric	Product	Limit
EAPSv2 protected VLANs—maximum number of protected VLANs.	ExtremeSwitching, X465, X695	2,000
ERPS domains—maximum number of ERPS domains without CFM configured.	ExtremeSwitching, X465, X695	32
ERPS domains—maximum number of ERPS domains with CFM configured.	ExtremeSwitching, X465, X695	32
ERPSv1 protected VLANs—maximum number of protected VLANs.	ExtremeSwitching, X465, X695	2,000
ERPSv2 protected VLANs—maximum number of protected VLANs.	ExtremeSwitching, X465, X695	2,000
ESRP groups—maximum number of ESRP groups	ExtremeSwitching X465, X695	32
ESRP domains—maximum number of ESRP domains.	ExtremeSwitching, X465, X695	64
ESRP L2 VLANs—maximum number of ESRP VLANs without an IP address configured.	ExtremeSwitching, X465, X695	1,000
ESRP L3 VLANs—maximum number of ESRP VLANs with an IP address configured.	ExtremeSwitching, X465, X695	511
ESRP (maximum ping tracks)—maximum number of ping tracks per VLAN.	ExtremeSwitching, X465, X695	8
ESRP (IP route tracks)—maximum IP route tracks per VLAN.	ExtremeSwitching, X465, X695	8
ESRP (VLAN tracks)—maximum number of VLAN tracks per VLAN.	ExtremeSwitching, X465, X695	1
L2 VPN: VCCV (pseudowire Virtual Circuit Connectivity Verification) VPNs per switch—maximum number of VCCV enabled VPLS VPNs.	ExtremeSwitching, X465, X695	16
L2 VPN: VPLS MAC addresses—maximum number of MAC addresses learned by a switch.	ExtremeSwitching, X465, X695	140,000
L2 VPN: VPLS VPNs—maximum number of VPLS virtual private networks per switch.	ExtremeSwitching, X465, X695	1,023

Table 9: Supported Limits for Advanced Edge License (continued)

Metric	Product	Limit
L2 VPN: VPLS peers—maximum number of VPLS peers per VPLS instance.	ExtremeSwitching, X465, X695	64
L2 VPN: LDP pseudowires—maximum number of pseudowires per switch.	ExtremeSwitching, X465, X695	7,000
L2 VPN: static pseudowires—maximum number of static pseudowires per switch.	ExtremeSwitching, X465, X695	7,000
L2 VPN: Virtual Private Wire Service (VPWS) VPNs—maximum number of virtual private networks per switch.	ExtremeSwitching, X465, X695	4,090
MPLS RSVP-TE interfaces—maximum number of interfaces.	ExtremeSwitching X465, X695	32
MPLS RSVP-TE ingress LSPs—maximum number of ingress LSPs.	ExtremeSwitching X465, X695	2,000
MPLS RSVP-TE egress LSPs—maximum number of egress LSPs.	ExtremeSwitching X465, X695	2,000
MPLS RSVP-TE transit LSPs—maximum number of transit LSPs.	ExtremeSwitching, X465, X695	4,000
MPLS RSVP-TE paths—maximum number of paths.	ExtremeSwitching, X465, X695	2,000
MPLS RSVP-TE profiles—maximum number of profiles.	ExtremeSwitching X465, X695	2,000
MPLS RSVP-TE EROs—maximum number of EROs per path.	ExtremeSwitching X465, X695	64
MPLS LDP peers—maximum number of MPLS LDP peers per switch.	ExtremeSwitching X465, X695	128
MPLS LDP adjacencies—maximum number of MPLS LDP adjacencies per switch.	ExtremeSwitching X465, X695	64
MPLS LDP ingress LSPs—maximum number of MPLS LSPs that can originate from a switch.	ExtremeSwitching X465, X695	2,048
MPLS LDP-enabled interfaces—maximum number of MPLS LDP configured interfaces per switch.	ExtremeSwitching X465, X695	128

Table 9: Supported Limits for Advanced Edge License (continued)

Metric	Product	Limit
MPLS LDP transit LSPs—maximum number of MPLS transit LSPs per switch.	ExtremeSwitching X465, X695	4,000
MPLS LDP egress LSPs—maximum number of MPLS egress LSPs that can terminate on a switch.	ExtremeSwitching X465, X695	4,000
MPLS static egress LSPs—maximum number of static egress LSPs.	ExtremeSwitching, X465, X695	8,000
MPLS static ingress LSPs—maximum number of static ingress LSPs.	ExtremeSwitching X465, X695	4,000
MPLS static transit LSPs—maximum number of static transit LSPs	ExtremeSwitching X465, X695	4,000
OSPFv2/v3 ECMP—maximum number of equal cost multipath OSPFv2 and OSPFv3.	ExtremeSwitching, X465, X695	64
OSPFv2 areas—as an ABR, how many OSPF areas are supported within the same switch.	ExtremeSwitching, X465, X695	8
OSPFv2 external routes—recommended maximum number of external routes contained in an OSPF LSDB.	ExtremeSwitching, X465, X695	10,000
OSPFv2 inter- or intra-area routes—recommended maximum number of inter- or intra-area routes contained in an OSPF LSDB with one ABR in OSPF domain.	ExtremeSwitching, X465, X695	2,000
OSPFv2 inter-vr or leaking routes—recommended maximum number of inter-vr routes contained in an OSPF LSDB.	ExtremeSwitching, X465, X695	2,000
OSPFv2 interfaces—recommended maximum number of OSPF interfaces on a switch (active interfaces only).	ExtremeSwitching, X465, X695	4
OSPFv2 links—maximum number of links in the router LSA.	ExtremeSwitching, X465, X695	400
OSPFv2 neighbors—maximum number of supported OSPF adjacencies.	ExtremeSwitching, X465, X695	4

Table 9: Supported Limits for Advanced Edge License (continued)

Metric	Product	Limit
OSPFv2 routers in a single area—recommended maximum number of routers in a single OSPF area.	ExtremeSwitching, X465, X695	100
OSPFv2 virtual links—maximum number of supported OSPF virtual links.	ExtremeSwitching, X465, X695	32
OSPFv3 areas—as an ABR, the maximum number of supported OSPFv3 areas.	ExtremeSwitching, X465, X695	100
OSPFv3 external routes—recommended maximum number of external routes.	ExtremeSwitching, X465, X695	10,000
OSPFv3 inter- or intra-area routes—recommended maximum number of inter- or intra-area routes.	ExtremeSwitching, X465, X695	4.000
OSPFv3 interfaces—maximum number of OSPFv3 interfaces (active interfaces only).	ExtremeSwitching, X465, X695	4
OSPFv3 neighbors—maximum number of OSPFv3 neighbors.	ExtremeSwitching, X465, X695	4
OSPFv3 virtual links—maximum number of OSPFv3 virtual links supported.	ExtremeSwitching, X465, X695	16
PIM IPv4 (maximum interfaces)—maximum number of PIM active interfaces.	ExtremeSwitching, X465, X695	4
PIM IPv4 Limits—maximum number of multicast groups per dynamic rendezvous point.	ExtremeSwitching, X465, X695	180
PIM IPv4 Limits—maximum number of multicast groups per static rendezvous point.	ExtremeSwitching, X465, X695	3,000 (depends on policy file limits)
PIM IPv4 Limits—maximum number of multicast sources per group.	ExtremeSwitching, X465, X695	5,000
PIM IPv4 Limits—maximum number of dynamic rendezvous points per multicast group.	ExtremeSwitching, X465, X695	145
PIM IPv4 Limits—static rendezvous points.	ExtremeSwitching, X465, X695	32
PIM IPv6 (maximum interfaces)—maximum number of PIM active interfaces.	ExtremeSwitching, X465, X695	4

Table 9: Supported Limits for Advanced Edge License (continued)

Metric	Product	Limit
PIM IPv6 Limits—maximum number of multicast sources per group.	ExtremeSwitching, X465, X695	1,750
PIM IPv6 Limits—maximum number of multicast groups per dynamic rendezvous point.	ExtremeSwitching, X465, X695	70
PIM IPv6 Limits—maximum number of multicast groups per static rendezvous point.	ExtremeSwitching, X465, X695	3,000 (depends on policy file limits)
PIM IPv6 Limits—maximum number of dynamic rendezvous points per multicast group.	ExtremeSwitching, X465, X695	64
PIM IPv6 Limits—maximum number of secondary addresses per interface.	ExtremeSwitching, X465, X695	70
PIM IPv6 Limits—static rendezvous points.	ExtremeSwitching, X465, X695	32
Port-specific VLAN tags—maximum number of port-specific VLAN tags.	ExtremeSwitching, X465 ExtremeSwitching, X695	1,023 N/A
Port-specific VLAN tags—maximum number of port-specific VLAN tag ports.	ExtremeSwitching, X465 ExtremeSwitching, X695	4,000 N/A
VLAN Port Interfaces (VPIF)—maximum number of VLAN port interfaces.	ExtremeSwitching X465, X695	131,585
VRRP (v2/v3-IPv4) (maximum instances)—maximum number of VRRP instances for a single switch, with Advanced Edge license or higher. **Note:** These limits are applicable for Fabric Routing configuration also. **Note:** Number of groups configured should not exceed the number of individual VRs supported (that is, in normal mode) for that platform type.	**Normal Mode (as individual VRs):** ExtremeSwitching, X465, X695 **Scaled Mode (with groups):** ExtremeSwitching X465, X695	 511 2,048

Table 9: Supported Limits for Advanced Edge License (continued)

Metric	Product	Limit
VRRP (v3-IPv6) (maximum instances)—maximum number of VRRP instances for a single switch, with Advanced Edge or Base license, or higher. (VRRP-VRRPv3-IPv6) **Note:** These limits are applicable for Fabric Routing configuration also. **Note:** Number of groups configured should not exceed the number of individual VRs supported (that is, in normal mode) for that platform type.	**Normal Mode (as individual VRs):** ExtremeSwitching X465, X695	511
	Scaled Mode (with groups): ExtremeSwitching X465, X695	2,048
VRRP (v2/v3-IPv4/IPv6) (maximum VRID)—maximum number of unique VRID numbers per switch.	ExtremeSwitching X465, X695 **Note:** With Advanced Edge license or higher.	255
VRRP (v2/v3-IPv4/IPv6) (maximum VRIDs per VLAN)—maximum number of VRIDs per VLAN.	ExtremeSwitching X465, X695 **Note:** With Advanced Edge license or higher.	255
VRRP (v2/v3-IPv4/IPv6) (maximum ping tracks)—maximum number of ping tracks per VLAN.	ExtremeSwitching X465, X695 **Note:** With Advanced Edge license or higher.	8
VRRP (maximum ping tracks)—maximum number of ping tracks per VRRP Instance under 128 VRRP instances, with Advanced Edge license or higher.	ExtremeSwitching X465, X695	8 (20 centisecond or 1 second hello interval)
VRRP (v3-IPv6) (maximum ping tracks)—maximum number of ping tracks per VRRP Instance under 128 VRRP instances, with Advanced Edge license or higher.	ExtremeSwitching X465, X695	8 (20 centisecond or 1 second hello interval)
VRRP (v2/v3-IPv4/IPv6) (maximum iproute tracks)—maximum number of IP route tracks per VLAN.	ExtremeSwitching, X465, X695	8
VRRP (v2/v3-IPv4/IPv6)—maximum number of VLAN tracks per VLAN.	ExtremeSwitching X465, X695	8

Table 9: Supported Limits for Advanced Edge License (continued)

Metric	Product	Limit
VXLAN—maximum virtual networks. **Note:** Every VPLS instance/ PSTag VLAN reduces this limit by 1. **Note:** Assumption is all BUM (broadcast/unknown-unicast/multicast) FDB entries are pointing to the same set of RTEPs when all VNETs use explicit flooding. Depends on whether all VNETs use standard or explicit and the number of tenant VLAN ports.	ExtremeSwitchingX465, X695	2,048–4,000
VXLAN—maximum tenant VLANs plus port combinations **Note:** Every (VPLS/PSTag VLAN) + port reduces the limit by 1.	ExtremeSwitchingX465, X695	4,096
VXLAN—maximum static MAC to IP bindings. **Note:** Every FDB entry configured reduces this limit by 1.	ExtremeSwitchingX465, X695	64,000
VXLAN—maximum RTEP IP addresses	ExtremeSwitchingX465, X695	512
VXLAN—maximum virtual networks with dynamic learning and OSPF extensions for VXLAN	ExtremeSwitchingX465, X695	4,000
VXLAN—or replicator role, maximum number of attached leafs per switch.	ExtremeSwitching X465, X695	256

Core License Limits

The following table shows supported limits for features in the Core License.

Note
X440-G2, X450-G2, and X460-G2 are not supported in this version.

Table 10: Supported Limits for Core License

Metric	Product	Limit
Anycast RP Using PIM—maximum number of IPv4 Anycast RP set per VR.	ExtremeSwitching, X465, X695	32
Anycast RP Using PIM—maximum number of IPv6 Anycast RP set per VR.	ExtremeSwitching, X465, X695	32
Anycast RP Using PIM—RP peers per Anycast RP set.	ExtremeSwitching, X465, X695	10
BGP (aggregates)—maximum number of BGP aggregates.	ExtremeSwitching, X465, X695	256
BGP (networks)—maximum number of BGP networks.	ExtremeSwitching, X465, X695	1,024
BGP (peers)—maximum number of BGP peers. **Note:** With default keepalive and hold timers. **Note:** Each BGPv4/BGPv6 peer handles a maximum of 50 routes. **Note:** ECMP should not be enabled for BGP.	ExtremeSwitching , X465, X695	300
BGP (peer groups)—maximum number of BGP peer groups.	ExtremeSwitching, X465, X695	64
BGP (policy entries)—maximum number of BGP policy entries per route policy.	ExtremeSwitching, X465, X695	256
BGP (policy statements)—maximum number of BGP policy statements per route policy.	ExtremeSwitching, X465, X695	1,024
BGP multicast address-family routes—maximum number of multicast address-family routes.	ExtremeSwitching, X465, X695	25,000
BGP (unicast address-family routes)—maximum number of unicast address-family routes.	ExtremeSwitching X465, X695 (at default) ExtremeSwitching X465 (with ALPM enabled)	25,000 100,000

Table 10: Supported Limits for Core License (continued)

Metric	Product	Limit
BGP (non-unique routes)—maximum number of non-unique BGP routes.	ExtremeSwitching, X465, X695	25,000
BGP ECMP—maximum number of equal cost paths per multipath for BGP and BGPv6.	ExtremeSwitching, X465, X695	2, 4, 8, 16, 32, or 64
BGPv6 (unicast address-family routes)—maximum number of unicast address family routes.	ExtremeSwitching, X465, X695	10,000
BGPv6 (non-unique routes)—maximum number of non-unique BGP routes.	ExtremeSwitching X465, X695	24,000
EVPN EVI instances—maximum number of EVI instances.	ExtremeSwitching X465, X695	1,024
EVPN LAGs—maximum number of LAGs.	ExtremeSwitching X465, X695	128
GRE Tunnels—maximum number of GRE tunnels.	ExtremeSwitching, X465, X695	255
IS-IS adjacencies—maximum number of supported IS-IS adjacencies.	ExtremeSwitching, X465, X695	128
IS-IS ECMP—maximum number of equal cost paths per multipath for IS-IS.	ExtremeSwitching, X465, X695	2, 4, or 8
IS-IS interfaces—maximum number of interfaces that can support IS-IS.	ExtremeSwitching, X465, X695	255
IS-IS routers in an area—recommended maximum number of IS-IS routers in an area.	ExtremeSwitching, X465, X695	256
IS-IS route origination—recommended maximum number of routes that can be originated by an IS-IS node.	ExtremeSwitching, X465, X695	20,000
IS-IS IPv4 L1 routes in an L1 router—recommended maximum number of IS-IS Level 1 routes in a Level 1 IS-IS router.	ExtremeSwitching, X465, X695	25,000
IS-IS IPv4 L2 routes—recommended maximum number of IS-IS Level 2 routes.	ExtremeSwitching, X465, X695	25,000

Table 10: Supported Limits for Core License (continued)

Metric	Product	Limit
IS-IS IPv4 L1 routes in an L1/L2 router—recommended maximum number of IS-IS Level 1 routes in an L1/L2 IS-IS router.	ExtremeSwitching, X465, X695	20,000
IS-IS IPv6 L1 routes in an L1 router—recommended maximum number of IS-IS Level 1 routes in a Level 1 IS-IS router.	ExtremeSwitching, X465, X695	10,000
IS-IS IPv6 L2 routes—recommended maximum number of IS-IS Level 2 routes.	ExtremeSwitching, X465, X695	10,000
IS-IS IPv6 L1 routes in an L1/L2 router—recommended maximum number of IS-IS Level 1 routes in a L1/l2 router.	ExtremeSwitching, X465, X695	10,000
IS-IS IPv4/IPv6 L1 routes in an L1 router—recommended maximum number of IS-IS Level 1 routes in a Level 1 IS-IS router. The numbers documented are based on 50% IPv4 routes and 50% IPv6 routes.	ExtremeSwitching, X465, X695	20,000
IS-IS IPv4/IPv6 L2 routes in an L2 router—recommended maximum number of IS-IS Level 2 routes in a Level 2 IS-IS router. The numbers documented are based on 50% IPv4 routes and 50% IPv6 routes.	ExtremeSwitching, X465, X695	20,000
IS-IS IPv4/IPv6 L1 routes in an L1/L2 router—recommended maximum number of IS-IS Level 1 routes in a Level 1/ Level2 IS-IS router. The numbers documented are based on 50% IPv4 routes and 50% IPv6 routes.	ExtremeSwitching, X465, X695	20,000
MSDP active peers—maximum number of active MSDP peers.	ExtremeSwitching, X465, X695	64
MSDP SA cache entries—maximum number of entries in SA cache.	ExtremeSwitching X465, X695	14,000
MSDP maximum mesh groups—maximum number of MSDP mesh groups.	ExtremeSwitching, X465, X695	16
OSPFv2/v3 ECMP—maximum number of equal cost multipath OSPFv2 and OSPFv3.	ExtremeSwitching, X465, X695	64

Table 10: Supported Limits for Core License (continued)

Metric	Product	Limit
OSPFv2 areas—as an ABR, how many OSPF areas are supported within the same switch.	ExtremeSwitching, X465, X695	8
OSPFv2 external routes—recommended maximum number of external routes contained in an OSPF LSDB.	ExtremeSwitching, X465, X695	10,000
OSPFv2 inter- or intra-area routes—recommended maximum number of inter- or intra-area routes contained in an OSPF LSDB with one ABR in OSPF domain.	ExtremeSwitching, X465, X695	4,000
OSPFv2 inter-vr or leaking routes—recommended maximum number of inter-vr routes contained in an OSPF LSDB.	ExtremeSwitching, X465, X695	2,000
OSPFv2 interfaces—recommended maximum number of OSPF interfaces on a switch (active interfaces only).	ExtremeSwitching, X465, X695	400
OSPFv2 links—maximum number of links in the router LSA.	ExtremeSwitching, X465, X695	400
OSPFv2 neighbors—maximum number of supported OSPF adjacencies.	ExtremeSwitching, X465, X695	128
OSPFv2 routers in a single area—recommended maximum number of routers in a single OSPF area.	ExtremeSwitching X465, X695	100
OSPFv2 virtual links—maximum number of supported OSPF virtual links.	ExtremeSwitching, X465, X695	32
OSPFv3 areas—as an ABR, the maximum number of supported OSPFv3 areas.	ExtremeSwitching X465, X695	100
OSPFv3 external routes—recommended maximum number of external routes.	ExtremeSwitching, X465, X695	10,000
OSPFv3 inter- or intra-area routes—recommended maximum number of inter- or intra-area routes.	ExtremeSwitching X465, X695	4.000

Table 10: Supported Limits for Core License (continued)

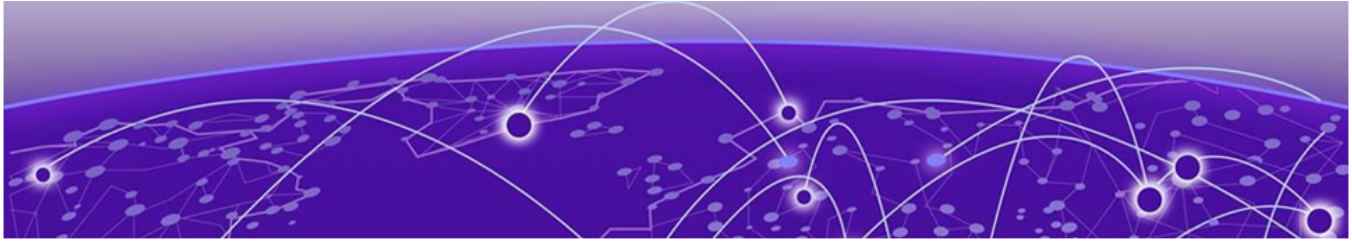
Metric	Product	Limit
OSPFv3 interfaces—maximum number of OSPFv3 interfaces (active interfaces only).	ExtremeSwitching, X465, X695	256
OSPFv3 neighbors—maximum number of OSPFv3 neighbors.	ExtremeSwitching, X465, X695	64
OSPFv3 virtual links—maximum number of OSPFv3 virtual links supported.	ExtremeSwitching, X465, X695	16
PIM IPv4 (maximum interfaces)—maximum number of PIM active interfaces.	ExtremeSwitching, X465, X695	255
PIM IPv4 Limits—maximum number of multicast groups per dynamic rendezvous point.	ExtremeSwitching, X465, X695	180
PIM IPv4 Limits—maximum number of multicast groups per static rendezvous point.	ExtremeSwitching, X465, X695	3,000 (depends on policy file limits)
PIM IPv4 Limits—maximum number of multicast sources per group.	ExtremeSwitching X465, X695	5,000
PIM IPv4 Limits—maximum number of dynamic rendezvous points per multicast group.	ExtremeSwitching X465, X695	145
PIM IPv4 Limits—static rendezvous points.	ExtremeSwitching X465, X695	32
PIM IPv6 (maximum interfaces)—maximum number of PIM active interfaces.	ExtremeSwitching X465, X695	255
PIM IPv6 Limits—maximum number of multicast sources per group.	ExtremeSwitching X465, X695	1,750
PIM IPv6 Limits—maximum number of multicast groups per dynamic rendezvous point.	ExtremeSwitching X465, X695	70
PIM IPv6 Limits—maximum number of multicast groups per static rendezvous point.	ExtremeSwitching X465, X695	3,000 (depends on policy file limits)
PIM IPv6 Limits—maximum number of dynamic rendezvous points per multicast group.	ExtremeSwitching X465, X695	64

Table 10: Supported Limits for Core License (continued)

Metric	Product	Limit
PIM IPv6 Limits—maximum number of secondary addresses per interface.	ExtremeSwitching X465, X695	70
PIM IPv6 Limits—static rendezvous points.	ExtremeSwitching X465, X695	32

Notes for Limits Tables

[a] The table shows the total available. When installing ACL rules bound to a set of ports, rules are replicated for each port if there are ACL counters and counter compression is not enabled, or if the ports are extended ports.
[c] When there are BFD sessions with minimal timer, sessions with default timer should not be used.
[f] Effective capacity varies based on actual MAC addresses and VLAN IDs used and hash algorithm selected.
[g] Based on "configure forwarding internal-tables more l2".
[h] Based on "configure forwarding internal-tables more l3-and-ipmc".
[j] The limit depends on setting configured with configure iproute reserved-entries.
[m] The IPv4 and IPv6 multicast entries share the same hardware tables, so the effective number of IPv6 multicast entries depends on the number of IPv4 multicast entries present and vice versa.
[n] If IGMP and MLD are simultaneously configured on the switch, the number of effective subscribers supported are lessened accordingly.
[o] The total of all PBR next hops on all flow redirects should not exceed 4,096.
[p] The number of XNV authentications supported based on system ACL limitations.
[q] Based on "configure forwarding internal-tables more routes".
[r] Based on `configure forwarding internal-tables more routes ipv6-mask-length 128`.
[s] Based on `configure forwarding internal-tables more l3-and-ipmc` or `configure forwarding internal-tables l2-and-l3`.



Open Issues, Known Behaviors, and Resolved Issues

Open Issues in this Version on page 96
Known Behaviors on page 97
Resolved Issues in ExtremeXOS on page 98

This chapter lists open software issues, limitations in ExtremeXOS system architecture (known issues), and resolved issues in ExtremeXOS.

Open Issues in this Version

The following are new open issues for supported features found in this version.

Table 11: Open issues in version 34.1.1

Defect Number	Description
General	
CFD-17151	Partitioned ports might not link up when upgrading an X695 from 31.7 to 34.1.1.
CFD-17326	Packet loss is seen when MLAG switch with reload-delay configuration is rebooted.
CFD-17488	Switch's boot menu displays same image name in both partitions although the installed images are different.
CFD-18011	"IPv4mc Grp table full" error occurs even though the number of programmed entries had not reached the table limit.
CFD-18391	EXOS secure syslog over TLS/TCP 6514 intermittently stops forwarding until connection reset.
CFD-18423	FEC operational status set to CL91 after upgrade to 33.7.1.6 despite FEC configured off.
CFD-18458	FA Authentication configuration was seen for Mgmt port which is not supported.
CFD-18504	While running cable diagnostics for a single port using the command `run diagnostics cable port` *`port_number`*, it initiates cable diagnostics for all ports of the switch.

Table 11: Open issues in version 34.1.1 (continued)

Defect Number	Description
CFD-18643	EAPS instability when using "open-secondary-port" with MACsec.
CFD-18657	The **watch** command buffers outputs of the runs are complete and display it in a single burst, instead of displaying it after each execution.
CFD-18661	Port utilization counters showing erroneous/ impossible values.

Known Behaviors

The following table lists limitations in system architecture that have yet to be resolved.

Table 12: Known Issues, Platform-Specific, and Feature Change Requests (CRs) in 34.1.1

Defect Number	Description
EXOS-39972	IPv4 Source IP Lockdown Blocks DHCPv6 Snooping Binding Learning: If IPv4 source IP lockdown is enabled on a port and IPv6 source IP lockdown is not, DHCPv6 snooping on that port does not learn IPv6 bindings for the clients on the port. IPv4 and IPv6 source IP lockdown share one deny rule on each port, so the rule drops the IPv6 Neighbor Discovery traffic that the DHCPv6 server needs to resolve the client. The server therefore never sends the Advertise or Reply message. This limitation occurs in a Layer 2 setup (DHCPv6 server, switch, client). It does not occur in a DHCPv6 relay setup. Workaround: When you use DHCPv6 snooping, also enable IPv6 source IP lockdown on the same ports: `enable ip-security ipv6 source-ip-lockdown ports` *`port_list`* In a Layer 2 setup, do not enable source IP lockdown on the port that faces the DHCPv6 server.

Resolved Issues in ExtremeXOS

The following issues were resolved in version 34.1.1. Version 34.1.1 includes all fixes up to and including versions 31.6, 31.7, 32.1, 32.2, 32.3, 32.4, 32.5, 32.6.x, 32.7.x, 33.2.1, 33.3.1, 33.4.1, 33.5.x, 33.6.x, and 34.1.1.

Table 13: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 34.1.1

Defect Number	Description
General	
CFD-14144	The **`show switch management`** command displays image integrity checking as unknown instead of valid.
CFD-14863	Broadcast and Multicast counters are not incremented in the **`show port mgmt stat`** command.
CFD-15771	Need provision for "Port-Based FDB-Flush" in EAPS implementation, which can be used in scaled networks to minimize hardware programming load.
CFD-15797	SNMP error occurs after upgrade to 32.7.3.
CFD-15926	The **`restart auto-provision cloud-connector`** CLI need to be introduced, which will be used to by ExtremeCloud™ IQ Site Engine for license refresh.
CFD-16425	A port disabled by ELRP permanently due to a loop in a dynamic VLAN is re-enabled as soon as the dynamic VLAN is deleted.
CFD-16501	When one of the stack member is removed/rebooted, show fans display "operational at 0 RPM" instead of Empty
CFD-16672	SFLOW sub-sampling is set to 2 eventhough all ports are configured with the same sample-rate
CFD-16675	Improved log message when an Access profile denies access based on an implicit deny without a deny entry in dynamic ACL.
CFD-16874	PIM join messages was not processed by the RP when it receives (S, G, RPT) after the interface pruned.
CFD-16898	The MRP process crashes when simultaneously enabling MVRP on an MLAG port on both MLAG peers.
CFD-16939	BGP blackhole entry remains in the kernel after removing the corresponding NLRI entry from the BGP route policy.
CFD-16988	Rx Jabber is incrementing even when port is disabled.
CFD-17014	On switches that don't have a dedicated OOB mgmt port, a memory leak occurs in the nettools process whenever cloud-connector is run.
CFD-17056	NTP configuration was lost after reboot if DHCP is enabled on the VLAN.
CFD-17172	VXLAN traffic not passing through a CEP CVID port of a VMAN.
CFD-17311	cfgmgr process crash noticed during license check on Universal platforms if the switch has user-created VR in the configuration.
CFD-17407	Help-text of **`debug hal show optic-info`** needs to be updated.
CFD-17522	VLAN process crash due to exdb infrastructure handler.

Table 13: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 34.1.1 (continued)

Defect Number	Description
CFD-17872	The **`show switch non-volatile-storage health-check`** command is restricted for non-admin users.
CFD-17925	Password for user admin is not getting updated when trying to change it using Web GUI / Chalet.
CFD-17994	Timezone configuration in `show configuration devmgr` command output displays autodst even when it is not enabled explicitly.
CFD-18345	Netlogin memory leak occurs due to authRequest.
CFD-18356	Process cliMaster crashes when the **`restart process exsshd`** command is issued in an SSH session, leading to switch resets.
CFD-18422	POE process crash occurs in X440-G2.
CFD-18464	The OSPF process crashes when the **`show ospf lsdb detail`**command is executed simultaneously on multiple CLI sessions.
EXOS-39816	In MLAG environment, packet blocking is not functioning correctly, resulting in duplicate packet forwarding and Layer 2 loops.
EXOS-39930	In ExtremeCloud™ IQ, collection for device not complete after adding SSH access profiles in the switch.
X435 Series Switches	
CFD-17487	When high amount rx pause frames are received on a port, the CPU bound traffic gets affected from the switch impacting the features like LACP/LAG.
X695 Series Switches	
CFD-15337	Error log "Failed to set fec config on port 1, rv = -18" occurs after rebooting the switch.