# ExtremeXOS v32.7.3 Release Notes

## New Features, Improvements, and Known Issues

9038065-06 Rev AA
June 2025

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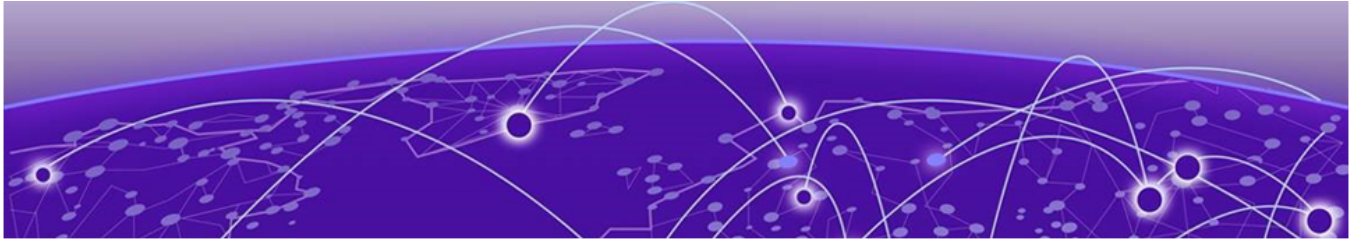

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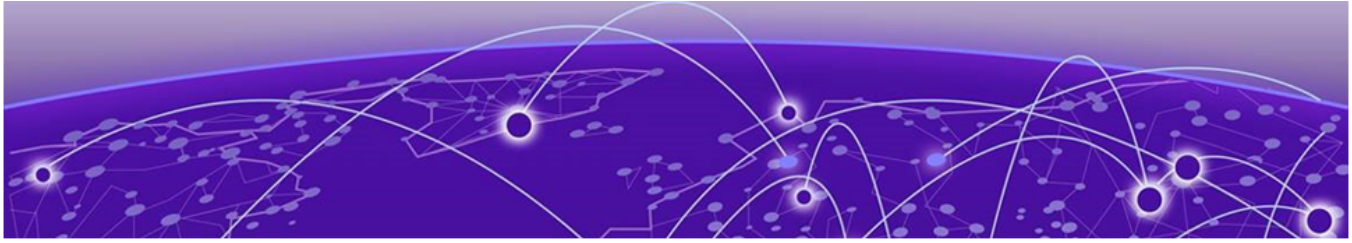

# Abstract

This release note for ExtremeXOS version 32.7.3, published by Extreme Networks, Inc. in June 2025, documents new features, resolved issues, and security information. The update includes improvements to the CLI Interactive Startup Script for Static IP Configuration, DHCP Fingerprinting for DHCP Snooping, and availability of both HTTP and HTTPS by default. It also covers security assessments, including DoS, ICMP, and port scan vulnerabilities. This version adds support for the Static NSI Offset feature, and resolved issues for software version 32.7.3.15. The document provides details on hardware and software compatibility, default settings, image file names, supported platforms, and guidance for upgrading. Additionally, it outlines limits for various licenses and features in the software.

# 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 or routers, the product is referred to as *the switch* or *the router*.

**Table 1: Notes and warnings**

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

**Table 1: Notes and warnings (continued)**

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

**Table 2: Text**

| 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.<br>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. |

**Table 3: Command syntax (continued)**

| Convention | Description |
|---|---|
| ... | 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 ExtremeXOS 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 ExtremeXOS command documentation (see the Extreme Documentation page at www.extremenetworks.com/documentation/). 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*.

# 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.

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The Hub

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

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

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

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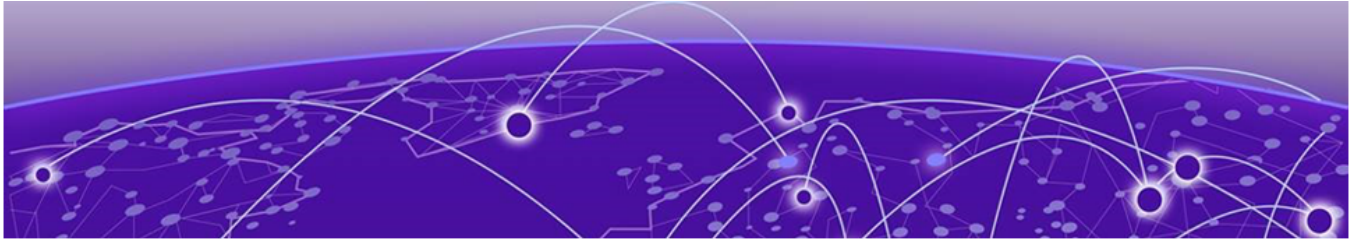
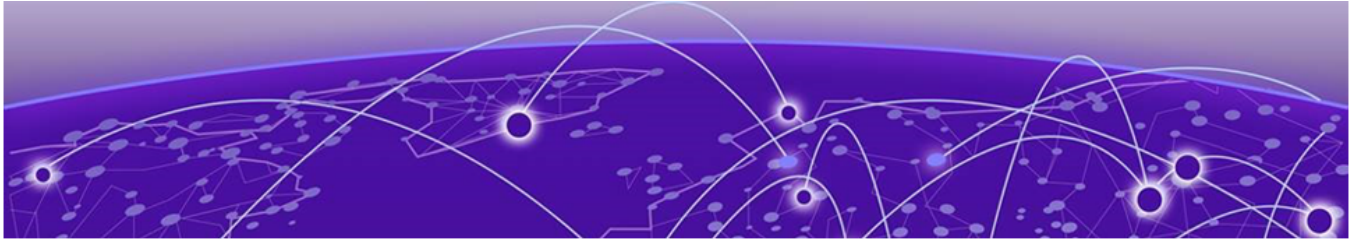
3. Select a product for which you would like to receive notifications.
4. Select **Subscribe**.
5. To select additional products, return to the **Product Announcements** list and repeat steps 3 and 4.

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



# Overview

These release notes document ExtremeXOS 32.7.1, which adds features and resolves software deficiencies.



# Security Information



The following section covers important security information for ExtremeXOS .

## Linux Kernel

ExtremeXOS uses Linux Kernel 5.10 for ExtremeSwitching X465, X590, X690, and X695 series switches, and Linux Kernel 4.14 for all other switches.

## OpenSSL Version

ExtremeXOS uses FIPS openssl-fips-2.0.16.

# Upgrading ExtremeXOS

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

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**

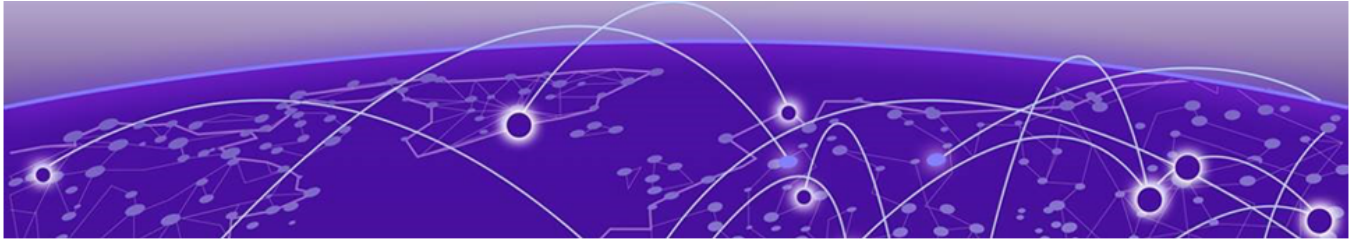
New ExtremeSwitching X435 PoE switches with a Giga device MCU part (switch default ships with supported EXOS versions from the factory) will prevent the switch downgrade to older EXOS versions.

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):

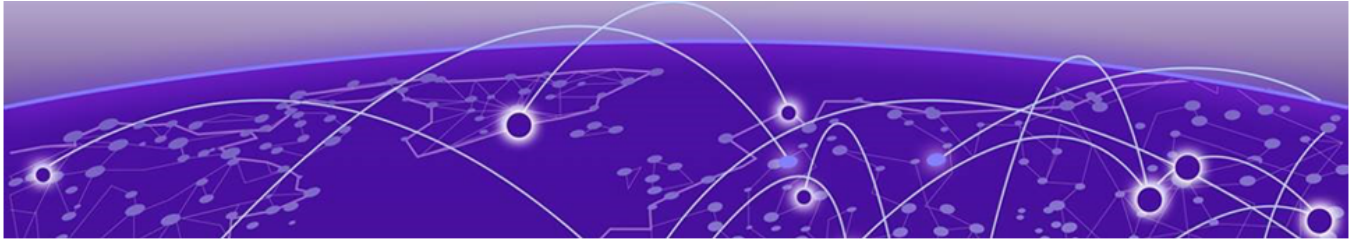
```
# show inline-power stats
Inline-Power Slot Statistics
Firmware status               : Operational
Firmware revision             : 5.0.0b4
Total ports powered           : 3
Total ports awaiting power    : 20
Total ports faulted           : 0
Total ports disabled          : 1
```



# 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 .



# 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.If you choose enhanced security mode when initially setting up the switch or after running unconfigure switch all.

**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. 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.If you choose enhanced security mode when initially setting up the switch or after running unconfigure switch all.[1] | | |
| AVB | Disabled. | | |
| BFD Strict Session Protection | Disabled. | | |
| BGP | Disabled. | | |
| Bluetooth | Enabled. | | |
| BOOTP Relay | Disabled. | | |
| CDP | Enabled. | | |
| Configuration auto save | Disabled. | | |
| Clear-flow | Disabled. | | |

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

**Table 4: Default ExtremeXOS Settings (continued)**

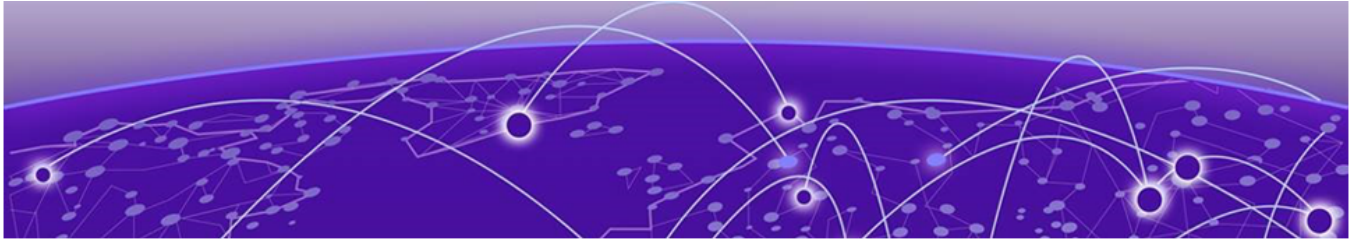
| Feature | 31.4 and earlier | 31.5 | 31.6 and later |
|---|---|---|---|
| Diagnostics | Admin level privileges required to show diagnostics. | | |
| DHCP | Disabled. | | |
| DNS Cache Resolver and Analytics | Disabled. | | |
| IPFIX | Disabled. | | |
| IP NAT | Disabled. | | |
| EAPS | Disabled. | | |
| EDP | Enabled on management port. | | |
| ELRP | Disabled. | | |
| ESRP | Disabled. | | |
| 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. [1] | | |
| Logging memory buffer | Generate an event when the logging memory buffer exceeds 90% of capacity. [1] | | |
| MAC Security | Disabled. | | |
| MLD | Disabled. | | |
| MLD Snooping | Disabled. | | |
| MPLS | Disabled. | | |

**Table 4: Default ExtremeXOS Settings (continued)**

| Feature | 31.4 and earlier | 31.5 | 31.6 and later |
|---|---|---|---|
| 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. | | |
| Passwords | Plain text password entry not allowed.[1] | | |
| PIM | Disabled. | | |
| PIM Snooping | Disabled. | | |
| PoE<br>Fast PoE<br>Perpetual PoE | Enabled.<br>Disabled.<br>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.[1] | | |
| SSH | Disabled. | | |
| Stacking-support | Disabled, except for X450-G2, X465. | | |
| Stacking auto-discovery | Enabled. | | |
| STP | Enabled. | | |
| Syslog | Disabled. | | |

**Table 4: Default ExtremeXOS Settings (continued)**

| Feature | 31.4 and earlier | 31.5 | 31.6 and later |
|---|---|---|---|
| TACACS | Disabled. | | |
| Telnet | Disabled.[1] | | Enabled. |
| VPEX IP Multicast Replication | Controlling Bridge | | |
| VPLS | All newly created VPLS instances are enabled. | | |
| Watchdog | Enabled. | | |
| Web HTTP server | Enabled.[1] | | |
| Web HTTPS server | Disabled.[1] | | |



# 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) |
|---|---|
| ExtremeSwitching X465, X695, and X590 | `onie-`<br>Example: `onie-22.2.1.2.xos`<br><br>**Note:** These image files use the Open Network Install Environment (ONIE). |
| ExtremeSwitching X440-G2, X450-G2, X460-G2, and X620 | `summitX-`<br>Example: `summitX-22.2.1.2.xos` |
| ExtremeSwitching X435 | `summitlite_arm-`<br>Example: `summitlite_arm-30.5.0.102.xos` |
| ExtremeSwitching X690 | `x690-`<br>Example: `x690-32.5.1.4.xos` |

# New and Corrected Features in ExtremeXOS



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

## Improvements to the CLI Interactive Startup Script for Static IP Configuration

Version 32.7.1 adds a management connectivity section to the initial CLI Safe Defaults script. If Auto-provisioning (ZTP+) is not successful or desired, you can perform manual IP configuration interactively as part of the `run provisioning` CLI command.

The CLI command `configure switch safe-default-script`, which was used in prior releases to run the startup script, has been deprecated, and the `run provisioning` command should be used instead. The deprecated command `configure switch safe-default-script` is still valid when entered completely at the CLI.

### Supported Platforms

All platforms.

## DHCP Fingerprinting for DHCP Snooping

Version 32.7.1 adds DHCP Fingerprinting information to the DHCP snooping CLI command. Telegraf support is also added in this release.

### Supported Platforms

All platforms.

## Set Autonegotiation to Legacy Default Mode

Version 32.7.1 adds a CLI command that lets you switch to *legacy default mode* for autonegotiation for 10G ports with 1G optics inserted.

### Supported Platforms

All platforms.

## HTTPS and HTTP Are Both Available By Default

Version 32.7.1 enables HTTPS as a default under certain conditions so that both HTTP and HTTPS are active and available for use at the same time.

### Supported Platforms

All platforms.

## New Date and Time Options for upload debug Command

Version 32.7.1 adds options to the upload debug command to not append the date and time to the file name, or to choose a format for the date and time appended to the file name.

### Supported Platforms

All platforms.

## Static NSI Offset

Beginning with this version, you can associate tagged VLANs to be mapped with a NSI value using static NSI offset configuration. When the NSI offset value is configured, any tagged VLAN that does not have a NSI associated will be applied with a NSI value, which is the sum of the configured NSI offset value and VLAN ID. The NSI offset applied to a VLAN will be removed if an NSI of higher precedence is applied to the VLAN.

### Supported Platforms

All platforms.

### New CLI Command

```
configure fabric attach [isid-nsi-offset [isid_nsi_offset | none]]
```

# ExtremeCloud IQ Agent Support

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.

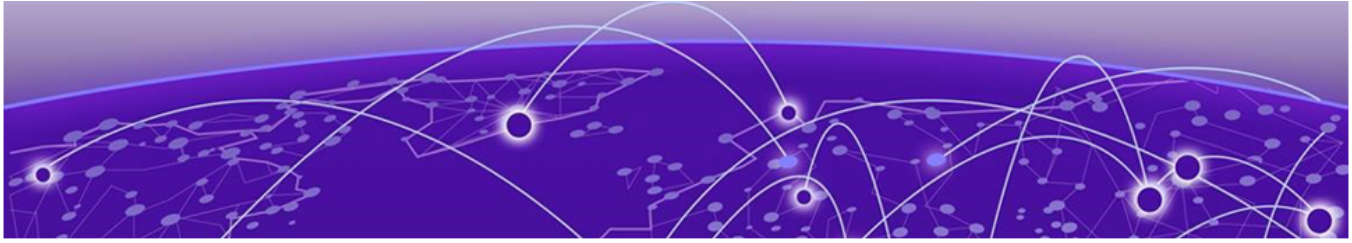
For more information about ExtremeCloud IQ, go to https://www.extremenetworks.com/support/documentation/extremecloud-iq/.

**Table 6: Supported Platforms**

| Switch Series | Switch Models |
|---|---|
| ExtremeSwitching X435 | X435-8T-4S<br>X435-8P-4S<br>X435-8P-2T-W<br>X435-24T-4S<br>X435-24P-4S |
| ExtremeSwitching X440-G2 | X440-G2-24P-10GE4<br>X440-G2-48P-10GE4<br>X440-G2-12T-10GE4<br>X440-G2-12P-10GE4<br>X440-G2-24T-10GE4<br>X440-G2-48T-10GE4 |

**Table 6: Supported Platforms (continued)**

| Switch Series | Switch Models |
|---|---|
| ExtremeSwitching X450-G2 | X450-G2-24P-10GE<br>X450-G2-48P-10GE<br>X450-G2-24P-GE4<br>X450-G2-48P-GE4 |
| ExtremeSwitching X460-G2 | X460-G2-24P-10GE4<br>X460-G2-48P-10GE4<br>X460-G2-16MP-32P-10GE4<br>X460-G2-24P-48HP-10GE4 |
| ExtremeSwitching X465 | X465-48P<br>X465-24MU-24W<br>X465-24W<br>X465-48W<br>X465-24MU |



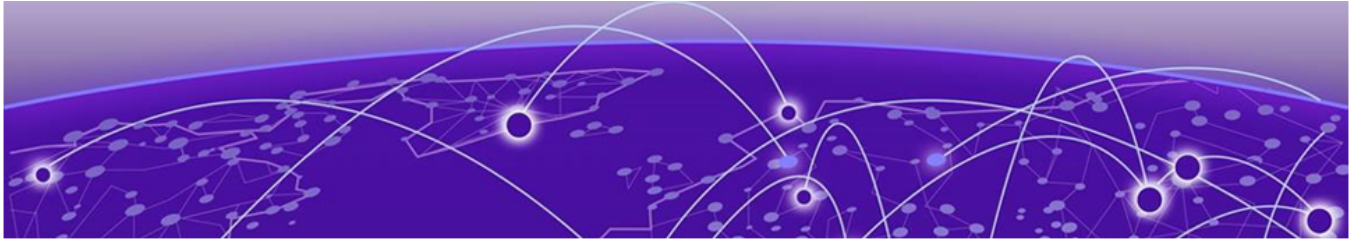
# Extreme Hardware/Software Compatibility and Recommendation Matrices

*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.

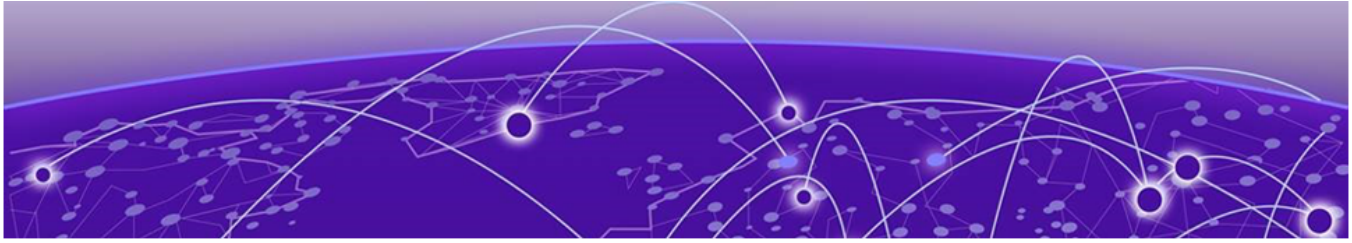
To find the recommended ExtremeXOS versions for specific hardware platforms, see *ExtremeXOS and Switch Engine Release Recommendations*.

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



# Compatibility with ExtremeCloud IQ Site Engine

ExtremeXOS is compatible with the version of ExtremeCloud IQ Site Engine shown in this table: http://emc.extremenetworks.com/content/common/releasenotes/extended_firmware_support.htm

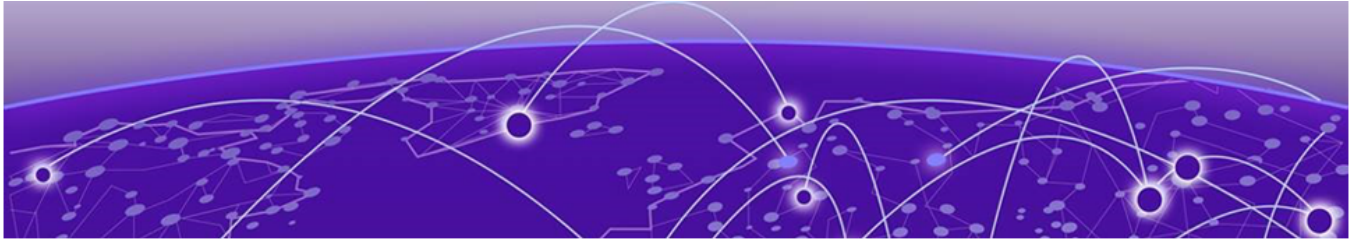


# Supported MIBs

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 .



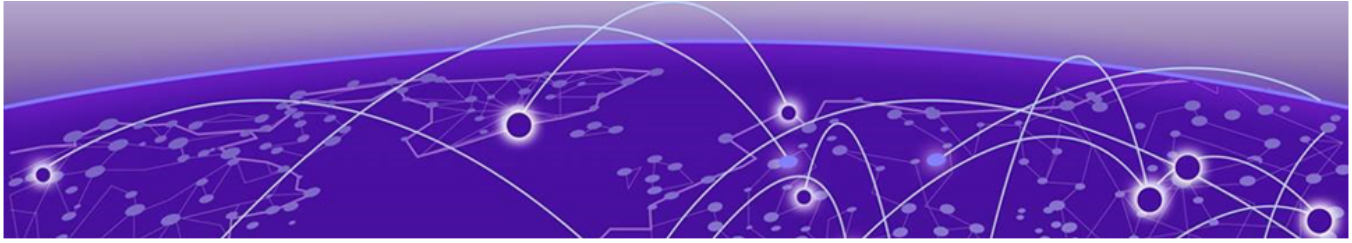
# Tested Third-Party Products

The following third-party products have been tested for ExtremeXOS .

## 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



This chapter summarizes the supported limits in ExtremeXOS and Switch Engine .

## Limits Overview

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

- Value Edge License Limits on page 30
- Edge License Limits on page 43
- Advanced Edge License Limits on page 69
- Core License Limits on page 79

Non-universal switches include the following license levels:

| Switch Category | Switches | Applicable License Levels |
|---|---|---|
| Non-universal switches | X435 *, X440-G2, X450-G2, X460-G2, X465, X590, X620, X690, X695 | Value Edge *, Edge, Advanced Edge, Core |
| **Note:** * The X435 is the only switch that supports the Value Edge license level. | | |

The following figure illustrates that each license level builds on the features of the license level below it. For example, the Advanced Edge license includes all of the features in the Edge license, plus the features in the Advance Edge license level.

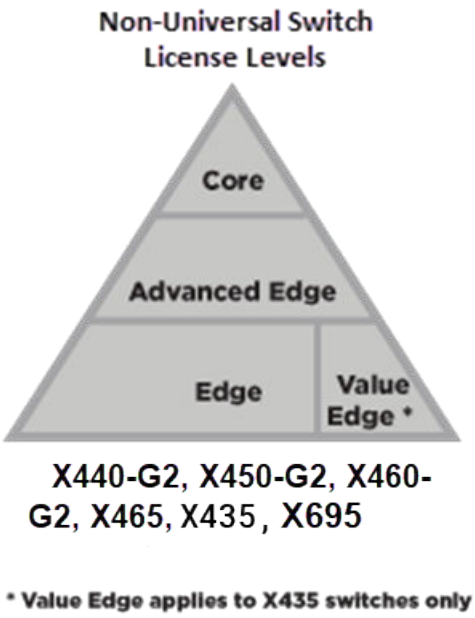



**Figure 1: License Levels for non-Universal Switches**

For more information about licenses, see .

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 Extended Edge Switching 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 Extended Edge Switching 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 |
| **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 |

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

| Metric | Product | Limit |
|---|---|---|
| **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.<br><br>**Note:** Limits are load-dependent. | ExtremeSwitching X435<br>with 50 DACLs<br>with 500 DACLs | 10<br>5 |
| **EAPS domains**—maximum number of EAPS domains. | ExtremeSwitching X435 | 4 |
| **EAPSv1 protected VLANs**—maximum number of protected VLANs. | ExtremeSwitching X435 | 1,000 |
| **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 |

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

| Metric | Product | Limit |
|---|---|---|
| **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 |
| **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 |

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

| Metric | Product | Limit |
|---|---|---|
| **Identity management**—recommended number of identities per switch.<br><br>**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.<br><br>**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 |
| **IGMPv3 subscriber**—maximum number of IGMPv3 subscribers per switch.[n] | ExtremeSwitching X435 | 10,000 |

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

| Metric | Product | Limit |
|---|---|---|
| **IP ARP entries in software**—maximum number of IP ARP entries in software.<br><br>**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 |
| **IPv6 addresses on a switch**—maximum number of IPv6 addresses on a switch. | ExtremeSwitching X435 | 15 |

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

| Metric | Product | Limit |
|---|---|---|
| **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.<br><br>**Note:**<br>• The internal lookup table configuration used is "l2-and-l3".<br>• IPv6 and IPv4 L2 IPMC scaling is the same for this mode.<br>• 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).<br><br>**Note:**<br>• Limit value is the same for MVR senders, PIM Snooping entries. PIM SSM cache, IGMP senders, PIM cache.<br>• Assumes source-group-vlan mode as look up key.<br>• 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).<br><br>**Note:**<br>• Limit value is the same for MLD sender per switch, PIM IPv6 cache.<br>• Assumes source-group-vlan mode as lookup key. | ExtremeSwitching X435 | 700 |
| **Load sharing**—maximum number of load sharing groups.<br><br>**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 |

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

| Metric | Product | Limit |
|---|---|---|
| **MAC-based security**—maximum number of MAC-based security policies. | ExtremeSwitching X435 | 1,024 |
| **MAC Locking**—Maximum number of MAC locking stations that can be learned on a port. | ExtremeSwitching X435 | 64 (static MAC locking stations)<br>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.<br><br>**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.<br><br>**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 |

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

| Metric | Product | Limit |
|---|---|---|
| **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 |
| **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<br>L2 Rules: 56 |
| **ONEPolicy Authenticated Users per Switch**—maximum number of authenticated users per switch with TCI-Overwrite disabled.<br><br>**Note:** The maximum values assume 75% utilization of VLAN-XLATE hash table. | ExtremeSwitching X435 | 192 |

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

| Metric | Product | Limit |
|---|---|---|
| **ONEPolicy Authenticated Users per Port per Switch** — maximum number of authenticated users per port per switch with TCI overwrite disabled.<br><br>**Note:** The maximum values assume 75% utilization of VLAN-XLATE hash table. | ExtremeSwitching X435 | 187 |
| **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 |

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

| Metric | Product | Limit |
|---|---|---|
| **Private VLANs**—maximum number of private VLANs with an IP address on the network VLAN.<br><br>**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 |
| **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.<br><br>**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.<br><br>**Note:** Maximum number of 10 active ports per VLAN when all 100 VLANs are in one MSTI. | ExtremeSwitching X435 | 100 |

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

| Metric | Product | Limit |
|---|---|---|
| **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 |
| **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.<br><br>**Note:** * Subject to other system limitations. | ExtremeSwitching X435 | 16 (local-only VRFs) |

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

| Metric | Product | Limit |
|---|---|---|
| **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<br>IPv6: 15 |
| **VLANs (maximum active port-based)**—maximum active ports per VLAN when 1,000 VLANs are configured with default license. | ExtremeSwitching X435 | 28 |
| **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.<br><br>**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 |
| **VLAN translation**—maximum number of translation VLAN pairs in an L2-only environment. | ExtremeSwitching X435 | 15 |

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

| Metric | Product | Limit |
|---|---|---|
| VMAN CEP—maximum number of CVIDs. | ExtremeSwitching X435 | 192 |
| XML requests—maximum number of XML requests per second.<br><br>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.

**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 X620, X440-G2 | 1,024 ingress<br>256 egress |
| | ExtremeSwitching X450-G2, X460-G2 | 1,024 ingress<br>512 egress |
| | ExtremeSwitching X590, X465, X690 | 2,048 ingress<br>512 egress |
| | ExtremeSwitching X695 | 6,000 ingress<br>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 X460-G2, X450-G2 | 4,096 ingress<br>1,024 egress |
| | ExtremeSwitching X620, X440-G2 | 2,048 ingress<br>512 egress |
| | ExtremeSwitching X590, X465, X690, X695 | 8,192 ingress<br>1,024 egress |
| Access lists (policies)—maximum number of rules in a single policy file in first stage (VFP). | ExtremeSwitching X450-G2, X460-G2, X590, X465 | 2,048 ingress only |
| | ExtremeSwitching X690, X695 | 1,024 ingress only |
| | ExtremeSwitching X620, X440-G2 | 512 ingress only |

**Table 8: Supported Limits for Edge License (continued)**

| Metric | Product | Limit |
|---|---|---|
| **Access lists (slices)**—number of ACL slices. | ExtremeSwitching X460-G2, X450-G2 | 16 ingress<br>4 egress |
| | ExtremeSwitching X590, X465, X690, X695 | 12 ingress<br>4 egress |
| | ExtremeSwitching X440-G2, X620 | 8 ingress<br>4 egress |
| **Access lists (slices)**—number of ACL slices in first stage (VFP). | ExtremeSwitching X450-G2, X460-G2, X465, X620, X440-G2, X590, X690, X695 | 4 ingress only |
| **ACL Per Port Meters**—number of meters supported per port. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X690, X465, X695 | 16 |
| **ACL port ranges.** | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 32 |
| **Meters Packets-Per-Second Capable.** | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X690, X465, X695 | Yes |
| **AVB (audio video bridging)**—maximum number of active streams. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2 | 1,024 |
| | ExtremeSwitching X465, X695, X590, X690 | 4,096 |
| **BFD sessions (Software Mode)**—maximum number of BFD sessions. | ExtremeSwitching X460-G2, X450-G2, X440-G2, X620, X590, X690, X465, X695 (default timers—1 sec) | 512 |
| | ExtremeSwitching X460-G2, X450-G2, X440-G2, X620, X590, X690, X465, X695 (minimal timers—100 msec) | 10 [C] |
| **BFD IPv4 sessions (Hardware Assisted)**—maximum number of IPv4 BFD sessions. | ExtremeSwitching X460-G2, X590, X690, X465, X695 | 900 (PTP not enabled)<br>425 (PTP enabled)<br>256 (with 3 ms transmit interval) |
| **BFD IPv6 sessions (Hardware Assisted)**—maximum number of IPv6 BFD sessions. | ExtremeSwitching X460-G2, X590, X690, X465, X695 | 425 (PTP not enabled) |
| **BOOTP/DHCP relay**—maximum number of BOOTP or DHCP servers per virtual router. | ExtremeSwitching X460-G2, X450-G2, X440-G2, X465, X620, X590, X690, X695 | 8 |
| **BOOTP/DHCP relay**—maximum number of BOOTP or DHCP servers per VLAN. | ExtremeSwitching X460-G2, 450-G2, X440-G2, X465, X620, X590, X690, X695 | 8 |

**Table 8: Supported Limits for Edge License (continued)**

| Metric | Product | Limit |
|---|---|---|
| **BOOTP/DHCP relay**—maximum number of DHCPv4/v6 relay agents | ExtremeSwitching X460-G2, X450-G2, X440-G2, X465, X620, X590, X690, X695 | 4,000 |
| **Connectivity fault management (CFM)**—maximum number or CFM domains.<br><br>**Note:** With Advanced Edge license or higher. | ExtremeSwitching X460-G2, X450-G2, X440-G2, X620, X590, X690, X465, X695 | 8 |
| **CFM**—maximum number of CFM associations.<br><br>**Note:** With Advanced Edge license or higher. | ExtremeSwitching X460-G2, X450-G2, X440-G2, X620, X590, X690, X465, X695 | 256 |
| **CFM**—maximum number of CFM up end points.<br><br>**Note:** With Advanced Edge license or higher. | ExtremeSwitching X460-G2, X450-G2, X440-G2, X620, X590, X690, X465, X695 | 32 |
| **CFM**—maximum number of CFM down end points.<br><br>**Note:** With Advanced Edge license or higher. | ExtremeSwitching X460-G2, X450-G2, X440-G2, X620, X590, X690, X465, X695<br><br>ExtremeSwitching X460-G2 | 32<br><br>256 (non-load shared ports)<br>32 (load shared ports) |
| **CFM**—maximum number of CFM remote end points per up/down end point.<br><br>**Note:** With Advanced Edge license or higher. | ExtremeSwitching X460-G2, X450-G2, X440-G2, X620, X590, X690, X465, X695 | 2,000 |
| **CFM**—maximum number of dot1ag ports.<br><br>**Note:** With Advanced Edge license or higher. | ExtremeSwitching X460-G2, X450-G2, X440-G2, X620, X590, X690, X465, X695 | 128 |
| **CFM**—maximum number of CFM segments.<br><br>**Note:** With Advanced Edge license or higher. | ExtremeSwitching X460-G2, X450-G2, X440-G2, X620, X590, X690, X465, X695 | 1,000 |

**Table 8: Supported Limits for Edge License (continued)**

| Metric | Product | Limit |
|---|---|---|
| **CFM**—maximum number of MIPs.<br><br>**Note:** With Advanced Edge license or higher. | ExtremeSwitching X460-G2, X450-G2, X440-G2, X620, X590, X690, 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 X460-G2, X450-G2<br>ExtremeSwitching X440-G2, X620<br>ExtremeSwitching X590, X465, X690, X695 | 4,094<br>1,024<br>8,192 |
| **Data Center Bridging eXchange (DCBX) protocol Type Length Value (TLVs)**—maximum number of DCBX application TLVs. | ExtremeSwitching X460-G2, X450-G2, X440-G2, X620, X590, X465, X690, X695 | 8 |
| **DHCPv6 Prefix Delegation Snooping**—Maximum number of DHCPv6 prefix delegation snooped entries. | ExtremeSwitching X460-G2, X450-G2, X440-G2, X620, X590, X690, X465, X695 | 256 (with underlying protocol RIPng)<br>128 (with underlying protocol OSPFv3)<br>1,024 (with static routes) |
| **DHCP snooping entries**—maximum number of DHCP snooping entries. | ExtremeSwitching X460-G2, X450-G2, X440-G2, X620, X590, X690, X465, X695 | 2,048 |
| **Dynamic ACLs**—maximum number of ACLs processed per second.<br><br>**Note:** Limits are load-dependent. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X690, X465, X695<br>with 50 DACLs<br>with 500 DACLs | <br><br>10<br>5 |
| **EAPS domains**—maximum number of EAPS domains.<br><br>**Note:** An EAPS ring that is being spatially reused cannot have more than four configured EAPS domains.<br><br>**Note:** You can increase the number of domains by upgrading to the Advanced Edge license. | ExtremeSwitching X450-G2, X460-G2, X440-G2, X620, X590, X690, X465, X695 | 4 |

**Table 8: Supported Limits for Edge License (continued)**

| Metric | Product | Limit |
|---|---|---|
| **EAPSv1 protected VLANs**—maximum number of protected VLANs. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2-24T/P | 1,000 |
| | ExtremeSwitching X590, X690, X465, X695 | 2,000 |
| **ERPS domains**—maximum number of ERPS domains with or without CFM configured.<br><br>**Note:** You can increase the number of domains by upgrading to the Advanced Edge license. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X690, X465, X695 | 4 |
| **ERPSv1 protected VLANs**—maximum number of protected VLANs. | ExtremeSwitching X590, X690, X465, X695 | 2,000 |
| | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2-24T/P | 1,000 |
| **ERPSv2 protected VLANs**—maximum number of protected VLANs. | ExtremeSwitching X450-G2, X460-G2, X590, X690, X465, X695 | 2,000 |
| | ExtremeSwitching X620, X440-G2-24T/P | 500 |
| **ELSM (vlan-ports)**—maximum number of VLAN ports. | ExtremeSwitching X450-G2, X460-G2, X620, X590, X465, X690, X695 | 5,000 |
| | ExtremeSwitching X440-G2-24T/P | 4,000 |
| **Extended Edge Switching maximum BPEs**—maximum number of attached bridge port extenders (BPEs). | ExtremeSwitching X465, X590, X690 | 48 |
| **Extended Edge Switching maximum cascade ports**—maximum number of upstream ports on bridge port extenders (BPEs). | ExtremeSwitching X465, X590, X690 | 2 on V400-24 and V300 models<br>4 on V400-48 models |
| **Extended Edge Switching maximum tiers**—maximum number of cascade levels (tiers) of bridge port extenders (BPEs). | ExtremeSwitching X465, X590, X690 | 4<br>(except for V300-8P-2T-W, which support 1 tier) |
| **Extended Edge Switching maximum ring BPEs**—maximum number of bridge port extenders (BPEs) in a ring topology. | ExtremeSwitching X465, X590, X690 | 8 |

**Table 8: Supported Limits for Edge License (continued)**

| Metric | Product | Limit |
|---|---|---|
| **Extended Edge Switching maximum VLANs**—maximum number of VLANs - Includes all VLANs | ExtremeSwitching X465, X590, X690 | 4,094 |
| **Extended Edge Switching VLAN+ port memberships**—maximum number of VLAN+ (extended) port memberships. | ExtremeSwitching X465, X590, X690 | 12,000 in hash mode (default)<br>131,000 in port-group mode |
| **Forwarding rate**—maximum L3 software forwarding rate. | ExtremeSwitching X440-G2 | 6,460 pps |
| | ExtremeSwitching X450-G2 | 16,000 pps |
| | ExtremeSwitching X465 | 28,497 pps |
| | ExtremeSwitching X460-G2 | 17,000 pps |
| | ExtremeSwitching X590 | 18,162 pps |
| | ExtremeSwitching X620 | 6,968 pps |
| | ExtremeSwitching X690 | 17,000 pps |
| | ExtremeSwitching X695 | 34,813 pps |
| **FDB (unicast blackhole entries)**—maximum number of unicast blackhole FDB entries. | ExtremeSwitching X460-G2 | 49,152[f] |
| | ExtremeSwitching X450-G2 | 34,816[f] |
| | ExtremeSwitching X620, X440-G2 | 16,384[f] |
| | ExtremeSwitching X590, X465, X690 | 278,528[f] |
| | ExtremeSwitching X695 | 294,912[f] |
| **FDB (multicast blackhole entries)**—maximum number of multicast blackhole FDB entries. | ExtremeSwitching X460-G2, X450-G2, X440-G2, X620 | 1,024 |
| | ExtremeSwitching X590, X465, X690, X695 | 4,096 |
| **FDB (maximum L2 entries)**—maximum number of MAC addresses. | ExtremeSwitching X460-G2 | 98,300[g] |
| | ExtremeSwitching X450-G2 | 68,000[g] |
| | ExtremeSwitching X620, X440-G2 | 16,384 |
| | ExtremeSwitching X590, X465, X690, X695 | 278,528[g] |
| | ExtremeSwitching X695 | 294,912[g] |
| **FDB (maximum L2 entries)**—maximum number of multicast FDB entries. | ExtremeSwitching X590, X465, X690, X695 | 4,096 |
| | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2 | 1,024 |
| **Identity management**—maximum number of Blacklist entries. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 512 |

**Table 8: Supported Limits for Edge License (continued)**

| Metric | Product | Limit |
|---|---|---|
| **Identity management**—maximum number of Whitelist entries. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 512 |
| **Identity management**—maximum number of roles that can be created. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 64 |
| **Identity management**—maximum role hierarchy depth allowed. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 5 |
| **Identity management**—maximum number of attribute value pairs in a role match criteria. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 16 |
| **Identity management**—maximum number of child roles for a role. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 8 |
| **Identity management**—maximum number of policies/dynamic ACLs that can be configured per role. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 8 |
| **Identity management**—maximum number of LDAP servers that can be configured. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 8 |
| **Identity management**—maximum number of Kerberos servers that can be configured. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 20 |
| **Identity management**—maximum database memory size. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 512 |
| **Identity management**—recommended number of identities per switch.<br><br>**Note:** Number of identities per switch is for a default identity management database size (512 Kbytes) across all platforms. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 100 |

**Table 8: Supported Limits for Edge License (continued)**

| Metric | Product | Limit |
|---|---|---|
| **Identity management**—recommended number of ACL entries per identity.<br><br>**Note:** Number of ACLs per identity, based on system ACL limitation. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, 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 X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 500 |
| **IGMP snooping per VLAN filters**—maximum number of VLANs supported in per-VLAN IGMP snooping mode. | ExtremeSwitching X460-G2, X695 | 1,500 |
| | ExtremeSwitching X450-G2 | 2,048 |
| | ExtremeSwitching X620, X440-G2 | 1,000 |
| | ExtremeSwitching X590, X690, X465 | 4,000 |
| **IGMPv1/v2 SSM-map entries**—maximum number of IGMPv1/v2 SSM mapping entries. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 500 |
| **IGMPv1/v2 SSM-map entries**—maximum number of sources per group in IGMPv1/v2 SSM mapping entries. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 50 |
| **IGMPv2 subscriber**—maximum number of IGMPv2 subscribers per port.[n] | ExtremeSwitching X590, X465, X690, X695, X460-G2, X450-G2 | 4,000 |
| | ExtremeSwitching X440-G2, X620 | 3,500 |
| **IGMPv2 subscriber**—maximum number of IGMPv2 subscribers per switch.[n] | ExtremeSwitching X460-G2, X450-G2 | 20,000 |
| | ExtremeSwitching X620, X440-G2 | 17,500 |
| | ExtremeSwitching X465, X590, X690, X695 | 45,000 |
| **IGMPv3 maximum source per group**—maximum number of source addresses per group. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 250 |
| **IGMPv3 subscriber**—maximum number of IGMPv3 subscribers per port.[n] | ExtremeSwitching X440-G2, X620 | 3,500 |
| | ExtremeSwitching X460-G2, X450-G2, X590, X465, X690, X695 | 4,000 |

**Table 8: Supported Limits for Edge License (continued)**

| Metric | Product | Limit |
|---|---|---|
| **IGMPv3 subscriber**—maximum number of IGMPv3 subscribers per switch.[n] | ExtremeSwitching X460-G2, X450-G2 | 20,000 |
| | ExtremeSwitching X620, X440-G2 | 17,500 |
| | ExtremeSwitching X590, X465, X690, X695 | 45,000 |
| **IP ARP entries in software**—maximum number of IP ARP entries in software.<br><br>**Note:** Might be limited by hardware capacity of FDB (maximum L2 entries). | ExtremeSwitching X460-G2 | 57,344 (up to)[h] |
| | ExtremeSwitching X450-G2 | 47,000 (up to)[h] |
| | ExtremeSwitching X440-G2, X620 | 20,480 |
| | ExtremeSwitching X590, X465, X690 | 157,694 (up to)[h] |
| | ExtremeSwitching X695 | 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 X460-G2 | 50,000 (up to)[h] |
| | ExtremeSwitching X450-G2 | 39,000 (up to)[h] |
| | ExtremeSwitching X620 | 1,500 |
| | ExtremeSwitching X440-G2 | 1,000 |
| | ExtremeSwitching X590, X465, X690 | 119,000 (up to)[h] |
| | ExtremeSwitching X695 | 146,000 (up to)[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 X460-G2 | 43,000 (up to)[h] |
| | ExtremeSwitching X450-G2 | 29,000 (up to)[h] |
| | ExtremeSwitching X620 | 1,500 |
| | ExtremeSwitching X440-G2 | 1,000 |
| | ExtremeSwitching X590, X465, X690 | 109,000 (up to)[h] |
| | ExtremeSwitching X695 | 125,000 (up to)[h] |
| **IP flow information export (IPFIX)**—number of simultaneous flows. | ExtremeSwitching X460-G2 | 2,048 ingress<br>2,048 egress |
| | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | N/A |

**Table 8: Supported Limits for Edge License (continued)**

| Metric | Product | Limit |
|---|---|---|
| **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 X460-G2 | 73,000 [h] |
| | ExtremeSwitching X450-G2 | 61,000 (up to) [h] |
| | ExtremeSwitching X440-G2, X620 | 3,500 |
| | ExtremeSwitching X590, X465, X690 | 216,000 (up to) [h] |
| | ExtremeSwitching X695 | 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 X460-G2, X450-G2, X440-G2, X620 | 25,000 |
| | ExtremeSwitching X590, X465, X690, X695 | 131,000 |
| **IPv4 routes (LPM entries in hardware)**— number of IPv4 routes in hardware. | ExtremeSwitching X460-G2 | 12,000 |
| | ExtremeSwitching X450-G2 | 16,000 |
| | ExtremeSwitching X590, X465, X690, X695 | 131,000 [q] |
| | ExtremeSwitching X620, X440-G2 | 480 |
| **IPv6 6in4 tunnel**—maximum number of IPv6 6in4 tunnels. | ExtremeSwitching X450-G2, X460-G2, X590, X465, X690, X695 | 255 |
| | ExtremeSwitching X440-G2, X620 | N/A |
| **IPv6 6to4 tunnel**—maximum number of IPv6 6to4 tunnels. | ExtremeSwitching X450-G2, X460-G2, X590, X465, X690, X695 | 1 (per virtual router) |
| | ExtremeSwitching X440-G2, X620 | N/A |
| **IPv6 addresses on an interface**—maximum number of IPv6 addresses on an interface. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 255 |
| **IPv6 addresses on a switch**—maximum number of IPv6 addresses on a switch. | ExtremeSwitching X460-G2, X450-G2, X590, X465, X690, X695 | 2,048 |
| | ExtremeSwitching X620, X440-G2 | 510 |

**Table 8: Supported Limits for Edge License (continued)**

| Metric | Product | Limit |
|---|---|---|
| **IPv6 host entries in hardware**—maximum number of IPv6 neighbor entries in hardware. | ExtremeSwitching X460-G2, | 22,000 [h] |
| | ExtremeSwitching X450-G2 | 12,000 [h] |
| | ExtremeSwitching X440-G2 | 1,000 |
| | ExtremeSwitching X620 | 1,500 |
| | ExtremeSwitching X590, X465, X690 | 24,500 [s] |
| | ExtremeSwitching X695 | 57,000 [h] |
| **IPv6 routes in software**—maximum number of IPv6 routes in software, including static routes and routes from all routing protocols. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2 | 25,000 |
| | ExtremeSwitching X590, X465, X690, X695 | 65,000 [g] |
| **IPv6 routes (LPM entries in hardware)**—maximum number of IPv6 routes in hardware. | ExtremeSwitching X460-G2 | 6,000 |
| | ExtremeSwitching X450-G2 | 8,000 |
| | ExtremeSwitching X590, X465, X690, X695 | 65,000 [g] |
| | ExtremeSwitching X620, X440-G2 | 240 |
| **IPv6 routes with a mask greater than 64 bits in hardware**—maximum number of such IPv6 LPM routes in hardware. | ExtremeSwitching X590, X465, X690, X695 | 8,192 [h] |
| | ExtremeSwitching X440-G2, X620 | 1,024 |
| | ExtremeSwitching X450-G2, X460-G2 | 2,048 |
| **IPv6 route sharing in hardware**—route mask lengths for which ECMP is supported in hardware. | ExtremeSwitching X460-G2, X450-G2, X620 | 0–64<br>>64 single path only |
| | ExtremeSwitching X590, X465, X690, X695 | 0–128 [h] |
| | ExtremeSwitching X440-G2 | Not supported |
| **IP router interfaces**—maximum number of VLANs performing IPv4 and/or IPv6 routing. Excludes sub-VLANs. | ExtremeSwitching X460-G2,X450-G2, X590, X465, X690, X695 | 2,048 |
| | ExtremeSwitching X620, X440-G2 | 510 |
| **IP multicast static routes**—maximum number of permanent multicast IP routes. | ExtremeSwitching X460-G2, X450-G2, X590, X465, X690, X695 | 1,024 |
| **IP unicast static routes**—maximum number of permanent IP unicast routes. | ExtremeSwitching X460-G2, X450-G2, X590, X465, X690, X695 | 1,024 |
| | ExtremeSwitching X620, X440-G2 | 480 |

**Table 8: Supported Limits for Edge License (continued)**

| Metric | Product | Limit |
|---|---|---|
| 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 X460-G2, X450-G2, X620, X590, X465, X690, X695 | 2, 4, 8, 16, 32, or 64 |
| | ExtremeSwitching X440-G2 | N/A |

**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. | ExtremeSwitching X460-G2, X450-G2 | |
| | if maximum gateways is 2 | 1,022 |
| | if maximum gateways is 4 | 1,022 |
| | if maximum gateways is 8 | 510 |
| | if maximum gateways is 16 (default) | 254 |
| | if maximum gateways is 32 | 126 |
| | if maximum gateways is 64 | 62 |
| | ExtremeSwitching X620 | |
| | if maximum gateways is 2 | 126 |
| | if maximum gateways is 4 | 126 |
| | if maximum gateways is 8 | 126 |
| | if maximum gateways is 16 (default) | 126 |
| | if maximum gateways is 32 | 62 |
| | if maximum gateways is 64 | 30 |
| | ExtremeSwitching X590, X465, X690, X695 | |
| | if maximum gateways is 2 | 4,094 |
| | if maximum gateways is 4 | 4,094 |
| | if maximum gateways is 8 | 2,046 |
| | if maximum gateways is 16 (default) | 1,022 |
| | if maximum gateways is 32 | 510 |
| | if maximum gateways is 64 | 254 |
| | **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 . | |
| | ExtremeSwitching X870 | |
| | if maximum gateways is 2 | 2,046 |
| | if maximum gateways is 4 | 2,046 |
| | if maximum gateways is 8 | 2,046 |
| | if maximum gateways is 16 (default) | 1,022 |
| | if maximum gateways is 32 | 510 |
| | if maximum gateways is 64 | 254 |
| | ExtremeSwitching X440-G2 | N/A |

**Table 8: Supported Limits for Edge License (continued)**

| Metric | Product | Limit |
|---|---|---|
| **IP multinetting (secondary IP addresses)**—maximum number of secondary IP addresses per VLAN. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 255 |
| **Jumbo frames**—maximum size supported for jumbo frames, including the CRC. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 9,216 |
| **Layer-2 IPMC forwarding caches**—(IGMP/MLD/PIM snooping) in mac-vlan mode.<br><br>**Note:**<br>• The internal lookup table configuration used is "l2-and-l3".<br>• IPv6 and IPv4 L2 IPMC scaling is the same for this mode.<br>• Layer-2 IPMC forwarding cache limits—(IGMP/MLD/PIM snooping) in mixed-mode are the same. | ExtremeSwitching X695<br>ExtremeSwitching X460-G2<br>ExtremeSwitching X450-G2<br>ExtremeSwitching X620, X440-G2<br>ExtremeSwitching X590, X465, X690 | 73,000<br>24,000<br>14,000<br>5,000<br>67,000 |
| **Layer-3 IPv4 Multicast**—maximum number of <S,G,V> entries installed in the hardware (IP multicast compression enabled).<br><br>**Note:**<br>• Limit value is the same for MVR senders, PIM Snooping entries. PIM SSM cache, IGMP senders, PIM cache.<br>• Assumes source-group-vlan mode as look up key.<br>• Layer 3 IPMC cache limit in mixed mode also has the same value. | ExtremeSwitching X460-G2<br>ExtremeSwitching X450-G2<br>ExtremeSwitching X620, X440-G2<br>ExtremeSwitching X590, X465, X690<br>ExtremeSwitching X695 | 26,000<br>21,000<br>1,500<br>93,000<br>104,000 |

**Table 8: Supported Limits for Edge License (continued)**

| Metric | Product | Limit |
|---|---|---|
| **Layer-3 IPv6 Multicast**—maximum number of <S,G,V> entries installed in the hardware (IP multicast compression enabled).<br><br>**Note:**<br>• Limit value is the same for MLD sender per switch, PIM IPv6 cache.<br>• Assumes source-group-vlan mode as lookup key. | ExtremeSwitching X460-G2 | 14,000 |
| | ExtremeSwitching X450-G2 | 10,000 |
| | ExtremeSwitching X620, X440-G2 | 700 |
| | ExtremeSwitching X590, X465, X690 | 48,000 |
| | ExtremeSwitching X695 | 52,000 |
| **Load sharing**—maximum number of load sharing groups.<br><br>**Note:**<br>• Limit value is the same for MLD sender per switch, PIM IPv6 cache.<br>• Assumes source-group-vlan mode as lookup key. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 128 |
| **Load sharing**—maximum number of ports per load-sharing group. | For standalone and stacked: ExtremeSwitching X620, X440-G2 | 8 |
| | For standalone: ExtremeSwitching X460-G2, X450-G2, X590, X465, X690, X695 | 32 |
| | For stacked: ExtremeSwitching X460-G2, X450-G2, X590, X465, X690, X695 | 64 |
| **Logged messages**—maximum number of messages logged locally on the system. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 20,000 |
| **MAC-based security**—maximum number of MAC-based security policies. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 1,024 |
| **MAC Locking**—Maximum number of MAC locking stations that can be learned on a port. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X695 | 64 (static MAC locking stations)<br>600 (first arrival MAC locking stations) |

**Table 8: Supported Limits for Edge License (continued)**

| Metric | Product | Limit |
|---|---|---|
| **Meters**—maximum number of meters supported. | ExtremeSwitching X460-G2, X450-G2, X440-G2, X620, X590 , X465, X690, X695 | 2,048 |
| **Maximum mirroring instances.** | ExtremeSwitching X450-G2, X460-G2, X590, X465, X690, X695<br><br>**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:<br><br>1. 4 ingress<br>2. 3 ingress + 1 egress<br>3. 2 ingress + 2 egress<br>4. 2 (ingress + egress)<br>5. 1 (ingress + egress) + 2 ingress<br>6. 1 (ingress + egress) + 1 egress + 1 ingress | 16 (including default mirroring instance) |
| | ExtremeSwitching X620, X440-G2<br><br>**Note:** For stacks containing X620 or X440-G2, maximum supported egress mirror instances is 1. | 1 (egress) |
| **Mirroring (filters)**—maximum number of mirroring filters.<br><br>**Note:** This is the number of filters across all the active mirroring instances. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 128 |
| **Mirroring, one-to-many (filters)**—maximum number of one-to-many mirroring filters.<br><br>**Note:** This is the number of filters across all the active mirroring instances. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 128 |

**Table 8: Supported Limits for Edge License (continued)**

| Metric | Product | Limit |
|---|---|---|
| **Mirroring, one-to-many (monitor port)**—maximum number of one-to-many monitor ports. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 16 |
| **MLAG ports**—maximum number of MLAG ports allowed. | ExtremeSwitching X690, X695 | 61 |
| | ExtremeSwitching X440-G2, X450-G2 | 51 |
| | ExtremeSwitching X460-G2 | 53 |
| | ExtremeSwitching X620 | 15 |
| | ExtremeSwitching X590 | 35 |
| | ExtremeSwitching X465 | 55 |
| | Stacking | 480 |
| **MLAG peers**—maximum number of MLAG peers allowed. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 2 |
| **Multicast listener discovery (MLD) snooping per-VLAN filters**—maximum number of VLANs supported in per-VLAN MLD snooping mode. | ExtremeSwitching X460-G2 | 768 |
| | ExtremeSwitching X450-G2 | 508 |
| | ExtremeSwitching X620, X440-G2 | 256 |
| | ExtremeSwitching X590, X465, X690, X695 | 1,500 |
| **Multicast listener discovery (MLD)v1 subscribers**—maximum number of MLDv1 subscribers per port.[n] | ExtremeSwitching X450-G2, X460-G2 | 4,000 |
| | ExtremeSwitching X620, X440-G2 | 3,500 |
| | ExtremeSwitching X590, X465, X690, X695 | 4,000 |
| **Multicast listener discovery (MLD)v1 subscribers**—maximum number of MLDv1 subscribers per switch.[n] | ExtremeSwitching X460-G2, X450-G2, X620, X440-G2 | 10,000 |
| | ExtremeSwitching X590, X465, X690, X695 | 45,000 |
| **Multicast listener discovery (MLD)v2 subscribers**—maximum number of MLDv2 subscribers per port.[n] | ExtremeSwitching X460-G2, X450-G2 | 4,000 |
| | ExtremeSwitching X620, X440-G2 | 3,500 |
| | ExtremeSwitching X590, X465, X690, X695 | 4,000 |
| **Multicast listener discovery (MLD)v2 subscribers**—maximum number of MLDv2 subscribers per switch.[n] | ExtremeSwitching X460-G2, X450-G2, X620, X440-G2 | 10,000 |
| | ExtremeSwitching X590, X465, X690, X695 | 45,000 |

**Table 8: Supported Limits for Edge License (continued)**

| Metric | Product | Limit |
|---|---|---|
| **Multicast listener discovery (MLD)v2 maximum source per group**—maximum number of source addresses per group. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 200 |
| **Multicast listener discovery (MLD) SSM-map entries**—maximum number of MLD SSM mapping entries. | ExtremeSwitching X450-G2, X460-G2, X590, X465, X690, X695<br>ExtremeSwitching X440-G2, X620 | 500<br>50 |
| **Multicast listener discovery (MLD) SSM-MAP entries**—maximum number of sources per group in MLD SSM mapping entries. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 50 |
| **Network Login**—maximum number of clients being authenticated on MAC-based VLAN enabled ports. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 1,024 |
| **Network Login**—maximum number of clients being authenticated with policy mode enabled with TCI overwrite enabled. | ExtremeSwitching X450-G2, X460-G2, X590, X465<br>ExtremeSwitching X690, X695<br>ExtremeSwitching X620, X440-G2 | 1,024<br>512<br>256 |
| **Network Login**—maximum number of dynamic VLANs. | ExtremeSwitching X460-G2, X450-G2, X590, X465, X690, X695<br>ExtremeSwitching X440-G2, X620 | 2,000<br>1,024 |
| **Network Login VLAN VSAs**—maximum number of VLANs a client can be authenticated on at any given time. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 10 |
| **Network Service Identifiers (NSI)/VLAN mappings**—maximum number of VLANs to NSI mappings. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 94 |
| **Network Address Translation (NAT) VLANs**—maximum number of NAT VLANs. | ExtremeSwitching X465, X590, X690, X695 | 4 |

**Table 8: Supported Limits for Edge License (continued)**

| Metric | Product | Limit |
|---|---|---|
| **Network Address Translation (NAT) Sessions**—number of NAT sessions supported (non twice-NAT). | ExtremeSwitching X465, X590, X690, X695 | 1,023 |
| **Node Alias**—maximum number of entries per slot. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X690, 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 X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 64 |
| **ONEPolicy Roles/Profiles**—maximum number of policy roles/profiles. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 63 |
| **ONEPolicy Rules per Role/Profile**—maximum number of rules per role/policy. | ExtremeSwitching X450-G2, X460-G2 | IPv6 rules: 256<br>IPv4 rules: 256<br>L2 Rules: 184<br>MAC Rules: 256 |
| | ExtremeSwitching X620, X440-G2 | IPv6 and Mac Rules: 0<br>Ipv4 Rules: 256 (per switch)<br>L2 Rules: 184 (per switch) |
| | ExtremeSwitching X465, X590, X690, X695 | IPv4 Rules: 512<br>IPv6 Rules: 512<br>MAC Rules: 512<br>L2 Rules: 440 |
| **ONEPolicy Authenticated Users per Switch**—maximum number of authenticated users per switch only with TCI-Overwrite enabled. | ExtremeSwitching X450-G2, X460-G2, X590, X465 | 1,024 |
| | ExtremeSwitching X690, X695 | 512 |
| | ExtremeSwitching X620, X440-G2 | 256 |
| | Stacking | Depends on the stack nodes, but the maximum is 65,535. |

**Table 8: Supported Limits for Edge License (continued)**

| Metric | Product | Limit |
|---|---|---|
| **ONEPolicy Authenticated Users per Switch**—maximum number of authenticated users per switch with TCI-Overwrite disabled.<br><br>**Note:** The maximum values assume 75% utilization of VLAN-XLATE hash table. | ExtremeSwitching X590, X465, X690 | 24,576 |
| | ExtremeSwitching X460-G2,, X695 | 12,288 |
| | ExtremeSwitching X450-G2 | 6,144 |
| | ExtremeSwitching X620, X440-G2 | 1,536 |
| | 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.<br><br>**Note:** The maximum values assume 75% utilization of VLAN-XLATE hash table. | ExtremeSwitching X450-G2 | 6,144 |
| | ExtremeSwitching X460-G2, X695 | 12,288 |
| | ExtremeSwitching X590, X465, X690 | 24,576 |
| | ExtremeSwitching X440-G2, X620 | 1,536 |
| **ONEPolicy Authenticated Users per Port per Switch** — maximum number of authenticated users per port with only with TCI-Overwrite enabled. | ExtremeSwitching X450-G2, X460-G2, X590, X465 | 1,024 |
| | ExtremeSwitching X690, X695 | 512 |
| | ExtremeSwitching X620, X440-G2 | 256 |
| **ONEPolicy Permit/Deny Traffic Classification Rules Types**—total maximum number of unique permit/deny traffic classification rules types (system/stack). | ExtremeSwitching X450-G2, X460-G2 | 952 |
| | ExtremeSwitching X620, X440-G2 | 440 |
| | ExtremeSwitching X590, X465, X690, X695 | 1,976 |
| **ONEPolicy Permit/Deny Traffic Classification Rules Types**—maximum number of unique MAC permit/deny traffic classification rules types (macsource/macdest). | ExtremeSwitching X450-G2, X460-G2 | 256 |
| | ExtremeSwitching X620, X440-G2 | N/A |
| | ExtremeSwitching X590, X465, X690, X695 | 512 |
| **ONEPolicy Permit/Deny Traffic Classification Rules Types**—maximum number of unique IPv6 permit/deny traffic classification rules types (ipv6dest). | ExtremeSwitching X450-G2, X460-G2 | 256 |
| | ExtremeSwitching X620, X440-G2 | N/A |
| | ExtremeSwitching X590, X465, X690, X695 | 512 |

**Table 8: Supported Limits for Edge License (continued)**

| Metric | Product | Limit |
|---|---|---|
| **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 X450-G2, X460-G2, X620, X440-G2, | 256 |
| | ExtremeSwitching X590, X465, X690, X695 | 512 |
| **ONEPolicy Permit/Deny Traffic Classification Rules Types**—maximum number of unique Layer 2 permit/deny traffic classification rules (ethertype/port). | ExtremeSwitching X450-G2, X460-G2 | 184 |
| | ExtremeSwitching X620, X440-G2 | 184 |
| | ExtremeSwitching X590, X465, X690, X695 | 440 |
| **OnePolicy Maximum number of rules supported in AccessList mode**—maximum number of rules in AcessList mode. | ExtremeSwitching X450-G2, X460-G2 | 3,000 |
| | ExtremeSwitching X440-G2, X620 | 952 |
| | ExtremeSwitching X690, X695 | 3,512 |
| | ExtremeSwitching X435 | 440 |
| | ExtremeSwitching X590 | 4,024 |
| **Policy-based routing (PBR) redundancy**—maximum number of flow-redirects. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590 , X465, X690, X695 | 256 [o] |
| **Policy-based routing (PBR) redundancy**—maximum number of next hops per each flow-direct. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 32 [o] |
| **Private VLANs**—maximum number of subscribers. Assumes a minimum of one port per network and subscriber VLAN. | ExtremeSwitching X460-G2 | 53 |
| | ExtremeSwitching X450-G2 | 51 |
| | ExtremeSwitching X440-G2 | 47 |
| | ExtremeSwitching X620 | 15 |
| | ExtremeSwitching X690, X695 | 71 |
| | ExtremeSwitching X590, X465 | 31 |

**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.<br><br>**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 X460-G2, X590, X465, X690, X695 | 1,024 |
| | ExtremeSwitching X450-G2 | 510 |
| | ExtremeSwitching X440-G2 | 255 |
| | ExtremeSwitching X620 | 510 |
| **Private VLANs**—maximum number of private VLANs in an L2-only environment. | ExtremeSwitching X460-G2, X590, X465, X690, X695 | 1,280 |
| | ExtremeSwitching X450-G2 | 597 |
| | ExtremeSwitching X440-G2, X620 | 255 |
| **Route policies**—suggested maximum number of lines in a route policy file. | ExtremeSwitching X460-G2, X620, X440-G2, X590, X465, X690, X695 | 10,000 |
| **RIP Learned Routes**—maximum number of RIP routes supported without aggregation. | ExtremeSwitchingX460-G2, X440-G2, X620, X590, X465, X690, X695 | 10,000 |
| **RIP interfaces on a single router**—recommended maximum number of RIP routed interfaces on a switch. | ExtremeSwitching X460-G2, X450-G2, X590, X465, X690, X695 | 256 |
| | ExtremeSwitching X440-G2, X620 | 128 |
| **RIPng learned routes**—maximum number of RIPng routes. | ExtremeSwitching X460-G2, X450-G2, X590, X465, X690, X695 | 3,000 |
| | ExtremeSwitching X440-G2, X620 | N/A |
| **Spanning Tree (maximum STPDs)**—maximum number of Spanning Tree Domains on port mode EMISTP. | ExtremeSwitching X450-G2, X460-G2, X620, X590, X465, X690, X695 | 64 |
| | ExtremeSwitching X440-G2 | 32 |

**Table 8: Supported Limits for Edge License (continued)**

| Metric | Product | Limit |
|---|---|---|
| **Spanning Tree PVST+**—maximum number of port mode PVST domains.<br><br>**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 X620<br><br>ExtremeSwitching X460-G2, X450-G2, X440-G2<br><br>ExtremeSwitching X590, X465, X690, X695 | 256<br><br>128<br><br>384 |
| **Spanning Tree**—maximum number of multiple spanning tree instances (MSTI) domains. | ExtremeSwitching X450-G2, X460-G2, X620, X590, X465, X690, X695<br><br>ExtremeSwitching X440-G2, | 64<br><br>32 |
| **Spanning Tree**—maximum number of VLANs per MSTI.<br><br>**Note:** Maximum number of 10 active ports per VLAN when all 500 VLANs are in one MSTI. | ExtremeSwitching X460-G2, X450-G2, X620, X590, X465, X690, X695<br><br>ExtremeSwitching X440-G2 | 600<br><br>256 |
| **Spanning Tree**—maximum number of VLANs on all MSTP instances. | ExtremeSwitching X460-G2, X450-G2, X620, X590, X465, X690, X695<br><br>ExtremeSwitching X440-G2 | 1,024<br><br>512 |
| **Spanning Tree (802.1d domains)**—maximum number of 802.1d domains per port. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 1 |
| **Spanning Tree (number of ports)**—maximum number of ports including all Spanning Tree domains. | ExtremeSwitching X450-G2, X460-G2, X620, X590, X465, X690, X695<br><br>ExtremeSwitching X440-G2 | 4,096<br><br>2,048 |

**Table 8: Supported Limits for Edge License (continued)**

| Metric | Product | Limit |
|---|---|---|
| **Spanning Tree (maximum VLANs)**—maximum number of STP-protected VLANs (dot1d and dot1w). | ExtremeSwitching X460-G2, X450-G2, X620, X590, X465, X690, X695 | 1,024 |
| | ExtremeSwitching X440-G2 | 600 |
| **SSH (number of sessions)**—maximum number of simultaneous SSH sessions. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 8 |
| **Static MAC multicast FDB entries**—maximum number of permanent multicast MAC entries configured into the FDB. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 1,024 |
| **Syslog servers**—maximum number of simultaneous Syslog servers that are supported. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 16 |
| **Syslog targets**—maximum number of configurable Syslog targets. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 16 |
| **Telnet (number of sessions)**—maximum number of simultaneous Telnet sessions. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 8 |
| **Virtual routers**—maximum number of user-created virtual routers that can be created on a switch. | ExtremeSwitching X460-G2, X450-G2, X590, X465, X690, X695 | 63 |
| | ExtremeSwitching X440-G2, X620 | 16 (local-only VRs) |
| **Virtual router forwarding (VRFs)**—maximum number of VRFs that can be created on a switch.<br><br>**Note:** * Subject to other system limitations. | ExtremeSwitching X460-G2,X450-G2, X590, X465, X690, X695 | 960 * |
| | ExtremeSwitching X440-G2, X620 | 16 (local-only VRFs) |
| **Virtual router protocols per VR**—maximum number of routing protocols per VR. | ExtremeSwitching X460-G2,X450-G2, X590, X465, X690, X695 | 8 |
| | ExtremeSwitching X440-G2, X620 | N/A |
| **Virtual router protocols per switch**—maximum number of VR protocols per switch. | ExtremeSwitching X460-G2,X450-G2, X590, X465, X690, X695 | 64 |
| | ExtremeSwitching X440-G2, X620 | N/A |

**Table 8: Supported Limits for Edge License (continued)**

| Metric | Product | Limit |
|---|---|---|
| **VLAN aggregation**—maximum number of port-VLAN combinations on any one superVLAN and all of its subVLANs. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 1,000 |
| **VLANs**—includes all VLANs.<br><br>**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 X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 4,094 |
| **VLANs (Layer 2)**—maximum number of Layer 2 VLANs. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 4,094 |
| **VLANs (Layer 3)**—maximum number of VLANs performing IPv4 and/or IPv6 routing. Excludes sub-VLANs. | ExtremeSwitching X460-G2,X450-G2, X590, X465, X690, X695 | 2,048 |
| | ExtremeSwitching X440-G2, X620 | 510 |
| **VLAN Port Interfaces (VPIF)**—maximum number of VLAN port interfaces. | ExtremeSwitching X440-G2, X450-G2, X460-G2, X620 | 65,536 |
| | ExtremeSwitching X465, X590, X690, X695 | 131,585 |
| **VLANs (maximum active port-based)**—maximum active ports per VLAN when 4,094 VLANs are configured with the default license. | ExtremeSwitching X590 , X465, X690, X695 | 32 |
| | ExtremeSwitching X440-G2 | 28 |
| | ExtremeSwitching X460-G2 | 26 |
| | ExtremeSwitching X620 | 16 |
| | ExtremeSwitching X450-G2 | 29 |
| **VLANs (maximum active protocol-sensitive filters)**—number of simultaneously active protocol filters in the switch. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 16 |

**Table 8: Supported Limits for Edge License (continued)**

| Metric | Product | Limit |
|---|---|---|
| VLAN translation—maximum number of translation VLANs. Assumes a minimum of one port per translation and member VLAN. | ExtremeSwitching X460-G2 | 53 |
| | ExtremeSwitching X450-G2 | 51 |
| | ExtremeSwitching X620 | 15 |
| | ExtremeSwitching X440-G2 | 47 |
| | ExtremeSwitching X690, X695 | 71 |
| | ExtremeSwitching X590, X465 | 31 |
| VLAN translation—maximum number of translation VLAN pairs with an IP address on the translation VLAN.<br><br>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, X590, X690, X695 | 1,024 |
| | ExtremeSwitching X450-G2 | 512 |
| | ExtremeSwitching X620 | 510 |
| | ExtremeSwitching X440-G2 | 255 |
| VLAN translation—maximum number of translation VLAN pairs in an L2-only environment. | ExtremeSwitching X450-G2, X460-G2, X590, X465, X690, X695 | 2,046 |
| | ExtremeSwitching X440-G2, X620 | 255 |
| VMAN CEP—maximum number of CVIDs.<br><br>Note: With 75% hash table utilization. | ExtremeSwitching X440-G2 | 1,500 |
| | ExtremeSwitching X450-G2 | 6,000 |
| | ExtremeSwitching X460-G2, | 12,000 |
| | ExtremeSwitching X590, X465, X690 | 24,000 |
| XML requests—maximum number of XML requests per second.<br><br>Note: Limits are dependent on load and type of XML request. These values are dynamic ACL data requests. | ExtremeSwitching X460-G2, X450-G2, X440-G2, X620, X590, X465, X690, X695 | 10 with 100 DACLs |
| XNV authentication—maximum number of VMs that can be processed (combination of local and network VMs). | ExtremeSwitching X460-G2, X590, X465, X690, X695 | 2,048 |
| | ExtremeSwitching X450-G2, X440-G2, X620 | 1,024 |

**Table 8: Supported Limits for Edge License (continued)**

| Metric | Product | Limit |
|---|---|---|
| **XNV database entries**—maximum number of VM database entries (combination of local and network VMs). | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 16,000 |
| **XNV database entries**—maximum number of VPP database entries (combination of local and network VPPs). | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 2,048 |
| **XNV dynamic VLAN**—Maximum number of dynamic VLANs created (from VPPs /local VMs). | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 2,048 |
| **XNV local VPPs**—maximum number of XNV local VPPs. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 2,048 ingress<br>512 egress |
| **XNV policies/dynamic ACLs**—maximum number of policies/dynamic ACLs that can be configured per VPP. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 8 ingress<br>4 egress |
| **XNV network VPPs**—maximum number of XNV network VPPs. p | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 2,048 ingress<br>512 egress |

## Advanced Edge License Limits

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

**Table 9: Supported Limits for Advanced Edge License**

| Metric | Product | Limit |
|---|---|---|
| **BGP auto-peering**—maximum number of auto-peering nodes and VTEPs. | ExtremeSwitching X590, X465, X690, X695 | 64 |
| **BGP auto-peering attached IPv4 hosts**— maximum number of attached IPv4 hosts. | ExtremeSwitching X590, X465, X690, X695 | 64,000 |
| **BGP auto-peering attached IPv6 hosts**— maximum number of attached IPv6 hosts. | ExtremeSwitching X590, X465, X690, X695 | 8,000 |

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

| Metric | Product | Limit |
|---|---|---|
| **BGP auto-peering ECMP**—maximum number of equal cost multipath for auto-peering.<br><br>**Note:** * Subject to the limitation imposed by the number of physical ports on a switch. | ExtremeSwitching X590, X465, X690, X695 | 16* |
| **BGP auto-peering maximum IPv4 prefixes with ECMP**—Maximum number of IPv4 Network prefixes with ECMP. | ExtremeSwitching X590, X465, X690, X695 | 64,000 |
| **BGP auto-peering maximum IPv6 prefixes with ECMP**—Maximum number of IPv6 Network prefixes with ECMP. | ExtremeSwitching X590, X465, X690, X695 | 8,000 |
| **BGP auto-peering MLAG peers**—maximum MLAG peers per AutoBGP node. | ExtremeSwitching X590, X465, X690, X695 | 1 |
| **BGP auto-peering VRFs**—maximum number of VRFs. | ExtremeSwitching X590, X465, X690, X695 | 64 |
| **BGP auto-peering EVPN instances**—maximum EVPN instances. | ExtremeSwitching X590, X465, X690, X695 | 1,024 |
| **EAPS domains**—maximum number of EAPS domains.<br><br>**Note:** An EAPS ring that is being spatially reused cannot have more than four configured EAPS domains. | ExtremeSwitching X590, X465, X690, X695<br>ExtremeSwitching X450-G2, X460-G2<br>ExtremeSwitching X440-G2, X620 | 128<br>64<br>32 |
| **EAPSv2 protected VLANs**—maximum number of protected VLANs. | ExtremeSwitching X450-G2, X460-G2, X440-G2, X620<br>ExtremeSwitching X590, X465, X690, X695 | 500<br>2,000 |
| **ERPS domains**—maximum number of ERPS domains without CFM configured. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 32 |
| **ERPS domains**—maximum number of ERPS domains with CFM configured. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 32 |
| **ERPSv1 protected VLANs**—maximum number of protected VLANs. | ExtremeSwitching X450-G2, X460-G2, X590, X465, X690, X695<br>ExtremeSwitching X620, X440-G2 | 2,000<br>1,000 |

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

| Metric | Product | Limit |
|---|---|---|
| ERPSv2 protected VLANs—maximum number of protected VLANs. | ExtremeSwitching X450-G2, X460-G2, X590, X465, X690, X695 | 2,000 |
| | ExtremeSwitching X620, X440-G2 | 500 |
| ESRP groups—maximum number of ESRP groups | ExtremeSwitching X450-G2, X460-G2, X440-G2, X620, X590, X465, X690, X695 | 32 |
| ESRP domains—maximum number of ESRP domains. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 64 |
| ESRP L2 VLANs—maximum number of ESRP VLANs without an IP address configured. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 1,000 |
| ESRP L3 VLANs—maximum number of ESRP VLANs with an IP address configured. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 511 |
| ESRP (maximum ping tracks)—maximum number of ping tracks per VLAN. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 8 |
| ESRP (IP route tracks)—maximum IP route tracks per VLAN. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X695 | 8 |
| ESRP (VLAN tracks)—maximum number of VLAN tracks per VLAN. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 1 |
| L2 VPN: VCCV (pseudowire Virtual Circuit Connectivity Verification) VPNs per switch—maximum number of VCCV enabled VPLS VPNs. | ExtremeSwitching X460-G2, X590, X465, X690, X695 | 16 |
| | ExtremeSwitching X450-G2, X620, X440-G2 | N/A |
| L2 VPN: VPLS MAC addresses—maximum number of MAC addresses learned by a switch. | ExtremeSwitching X590, X465, X690, X695 | 140,000 |
| | ExtremeSwitching X460-G2 | 55,000 |
| | ExtremeSwitching X450-G2, X620, X440-G2 | N/A |
| L2 VPN: VPLS VPNs—maximum number of VPLS virtual private networks per switch. | ExtremeSwitching X460-G2, X590, X465, X690, X695 | 1,023 |
| | ExtremeSwitching X450-G2, X620, X440-G2 | N/A |
| L2 VPN: VPLS peers—maximum number of VPLS peers per VPLS instance. | ExtremeSwitching X460-G2, X590, X465, X690, X695 | 64 |
| | ExtremeSwitching X450-G2, X620, X440-G2 | N/A |

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

| Metric | Product | Limit |
|---|---|---|
| L2 VPN: LDP pseudowires—maximum number of pseudowires per switch. | ExtremeSwitching X460-G2, X590, X465, X690, X695 | 7,000 |
| | ExtremeSwitching X450-G2, X620, X440-G2 | N/A |
| L2 VPN: static pseudowires—maximum number of static pseudowires per switch. | ExtremeSwitching X460-G2, X590, X465, X690, X695 | 7,000 |
| | ExtremeSwitching X450-G2, X620, X440-G2 | N/A |
| L2 VPN: Virtual Private Wire Service (VPWS) VPNs—maximum number of virtual private networks per switch. | ExtremeSwitching X590, X465, X690, X695 | 4,090 |
| | ExtremeSwitching X460-G2 | 1,023 |
| | ExtremeSwitching X450-G2, X620, X440-G2 | N/A |
| MPLS RSVP-TE interfaces—maximum number of interfaces. | ExtremeSwitching X460-G2, X590, X465,, X690, X695, | 32 |
| | ExtremeSwitching X450-G2, X440-G2, X620 | N/A |
| MPLS RSVP-TE ingress LSPs—maximum number of ingress LSPs. | ExtremeSwitching X460-G2, X590,, , X465, X690, X695 | 2,000 |
| | ExtremeSwitching X450-G2, X440-G2, X620 | N/A |
| MPLS RSVP-TE egress LSPs—maximum number of egress LSPs. | ExtremeSwitching X460-G2, X590, X465, X690, X695 | 2,000 |
| | ExtremeSwitching X450-G2, X440-G2, X620 | N/A |
| MPLS RSVP-TE transit LSPs—maximum number of transit LSPs. | ExtremeSwitching X460-G2, | 2,000 |
| | ExtremeSwitching X590, X465, X690, X695 | 4,000 |
| | ExtremeSwitching X450-G2, X440-G2, X620 | N/A |
| MPLS RSVP-TE paths—maximum number of paths. | ExtremeSwitching X460-G2 | 1,000 |
| | ExtremeSwitching X590, X465, X690, X695 | 2,000 |
| | ExtremeSwitching X450-G2, X440-G2, X620 | N/A |
| MPLS RSVP-TE profiles—maximum number of profiles. | ExtremeSwitching X460-G2 | 1,000 |
| | ExtremeSwitching X590, X465, X690, X695 | 2,000 |
| | ExtremeSwitching X450-G2, X440-G2, X620 | N/A |
| MPLS RSVP-TE EROs—maximum number of EROs per path. | ExtremeSwitching X460-G2, X590, X465, X690, X695 | 64 |
| | ExtremeSwitching X450-G2, and ExtremeSwitching X440-G2, X620 | N/A |

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

| Metric | Product | Limit |
|---|---|---|
| MPLS LDP peers—maximum number of MPLS LDP peers per switch. | ExtremeSwitching X460-G2, X590, X465, X690, X695 | 128 |
| | ExtremeSwitching X450-G2, X440-G2, X620 | N/A |
| MPLS LDP adjacencies—maximum number of MPLS LDP adjacencies per switch. | ExtremeSwitching X460-G2 | 50 |
| | ExtremeSwitching X590, X465, X690, X695 | 64 |
| | ExtremeSwitching X450-G2, X440-G2, X620 | N/A |
| MPLS LDP ingress LSPs—maximum number of MPLS LSPs that can originate from a switch. | ExtremeSwitching X460-G2, X590, X465, X690, X695 | 2,048 |
| | ExtremeSwitching X450-G2, X440-G2, X620 | N/A |
| MPLS LDP-enabled interfaces—maximum number of MPLS LDP configured interfaces per switch. | ExtremeSwitching X460-G2, X590, X465, X690, X695 | 128 |
| | ExtremeSwitching X450-G2, X440-G2, X620 | N/A |
| MPLS LDP transit LSPs—maximum number of MPLS transit LSPs per switch. | ExtremeSwitching X460-G2, X590, X465, X690, X695 | 4,000 |
| | ExtremeSwitching X450-G2, X440-G2, X620 | N/A |
| MPLS LDP egress LSPs—maximum number of MPLS egress LSPs that can terminate on a switch. | ExtremeSwitching X460-G2, X590, X465, X690, X695 | 4,000 |
| | ExtremeSwitching X450-G2, X440-G2, X620 | N/A |
| MPLS static egress LSPs—maximum number of static egress LSPs. | ExtremeSwitching X460-G2 | 7,116 |
| | ExtremeSwitching X590, X465, X690, X695 | 8,000 |
| | ExtremeSwitching X450-G2, X440-G2, X620 | N/A |
| MPLS static ingress LSPs—maximum number of static ingress LSPs. | ExtremeSwitching X460-G2, X590, X465, X690, X695 | 4,000 |
| | ExtremeSwitching X450-G2, X440-G2, X620 | N/A |
| MPLS static transit LSPs—maximum number of static transit LSPs | ExtremeSwitching X460-G2, X590, X465, X690, X695 | 4,000 |
| | ExtremeSwitching X450-G2, X440-G2, X620 | N/A |
| OSPFv2/v3 ECMP—maximum number of equal cost multipath OSPFv2 and OSPFv3. | ExtremeSwitching X460-G2, X450-G2, X590, X465, X690, X695 | 64 |
| | ExtremeSwitching X620 | 4 |
| | ExtremeSwitching X440-G2 | N/A |

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

| Metric | Product | Limit |
|---|---|---|
| **OSPFv2 areas**—as an ABR, how many OSPF areas are supported within the same switch. | ExtremeSwitching X460-G2, X590, X465, X690, X695 | 8 |
| | ExtremeSwitching X450-G2, X440-G2, X620 | 4 |
| **OSPFv2 external routes**—recommended maximum number of external routes contained in an OSPF LSDB. | ExtremeSwitching X590, X465, X690, X695 | 10,000 |
| | ExtremeSwitching X460-G2 | 5,000 |
| | ExtremeSwitching X450-G2, X440-G2, X620 | 2,400 |
| **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 X590, X465, X690, X695 | 2,000 |
| | ExtremeSwitching X460-G2 | 2,000 |
| | ExtremeSwitching X450-G2, X440-G2, X620 | 1,000 |
| **OSPFv2 inter-vr or leaking routes—**recommended maximum number of inter-vr routes contained in an OSPF LSDB. | ExtremeSwitching X590, X465, X690, X695, X460-G2 | 2,000 |
| | ExtremeSwitching X450-G2, X440-G2, X620 | 1,000 |
| **OSPFv2 interfaces**—recommended maximum number of OSPF interfaces on a switch (active interfaces only). | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 4 |
| **OSPFv2 links**—maximum number of links in the router LSA. | ExtremeSwitching X460-G2, X590, X465, X690, X695 | 400 |
| | ExtremeSwitching X450-G2, X620, X440-G2 | 4 |
| **OSPFv2 neighbors**—maximum number of supported OSPF adjacencies. | ExtremeSwitching X450-G2, X460-G2, X440-G2, X620, X590, X465, X690, X695 | 4 |
| **OSPFv2 routers in a single area**—recommended maximum number of routers in a single OSPF area. | ExtremeSwitching X590, X465, X690, X695 | 100 |
| | ExtremeSwitching X460-G2 | 50 |
| | ExtremeSwitching X450-G2, X440-G2, X620 | 4 |
| **OSPFv2 virtual links**—maximum number of supported OSPF virtual links. | ExtremeSwitching X460-G2, X590, X465, X690, X695 | 32 |
| | ExtremeSwitching X450-G2, X440-G2, X620 | 4 |
| **OSPFv3 areas**—as an ABR, the maximum number of supported OSPFv3 areas. | ExtremeSwitching X590, X465, X690, X695 | 100 |
| | ExtremeSwitching X460-G2 | 16 |
| | ExtremeSwitching X450-G2, X440-G2, X620 | 4 |

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

| Metric | Product | Limit |
|---|---|---|
| **OSPFv3 external routes**—recommended maximum number of external routes. | ExtremeSwitching X460-G2,X590, X465, X690, X695 | 10,000 |
| | ExtremeSwitching X450-G2, X440-G2, X620 | 1,200 |
| **OSPFv3 inter- or intra-area routes**—recommended maximum number of inter- or intra-area routes. | ExtremeSwitching X590, X465, X690, X695 | 4.000 |
| | ExtremeSwitching X460-G2 | 3,000 |
| | ExtremeSwitching X450-G2, X440-G2, X620 | 500 |
| **OSPFv3 interfaces**—maximum number of OSPFv3 interfaces (active interfaces only). | ExtremeSwitching X460-G2, X450-G2, X440-G2, X620, X590, X465, X690, X695 | 4 |
| **OSPFv3 neighbors**—maximum number of OSPFv3 neighbors. | ExtremeSwitching X450-G2, X460-G2,X440-G2, X620, X590, X465, X695 | 4 |
| **OSPFv3 virtual links**—maximum number of OSPFv3 virtual links supported. | ExtremeSwitching X460-G2, X590, X465, X690, X695 | 16 |
| | ExtremeSwitching X450-G2, X440-G2, X620 | 4 |
| **PIM IPv4 (maximum interfaces)**—maximum number of PIM active interfaces. | ExtremeSwitching X460-G2, X450-G2,X440-G2, X620, X590, X465, X690, X695 | 4 |
| **PIM IPv4 Limits**—maximum number of multicast groups per dynamic rendezvous point. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 180 |
| **PIM IPv4 Limits**—maximum number of multicast groups per static rendezvous point. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 3,000 (depends on policy file limits) |
| **PIM IPv4 Limits**—maximum number of multicast sources per group. | ExtremeSwitching X460-G2, X450-G2, X590, X465, X690, X695 | 5,000 |
| | ExtremeSwitching X440-G2, X620 | 1,500 |
| **PIM IPv4 Limits**—maximum number of dynamic rendezvous points per multicast group. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 145 |
| **PIM IPv4 Limits**—static rendezvous points. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 32 |
| **PIM IPv6 (maximum interfaces)**—maximum number of PIM active interfaces. | ExtremeSwitching X460-G2, X450-G2,X440-G2, X620, X590 , X465, X690, 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 X460-G2, X590 , X465, X690, X695 | 1,750 |
| | ExtremeSwitching X450-G2 | 1,500 |
| | ExtremeSwitching X440-G2, X620 | 550 |
| PIM IPv6 Limits—maximum number of multicast groups per dynamic rendezvous point. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 70 |
| PIM IPv6 Limits—maximum number of multicast groups per static rendezvous point. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 3,000 (depends on policy file limits) |
| PIM IPv6 Limits—maximum number of dynamic rendezvous points per multicast group. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 64 |
| PIM IPv6 Limits—maximum number of secondary addresses per interface. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590 , X465, X690, X695 | 70 |
| PIM IPv6 Limits—static rendezvous points. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590 , X465, X690, X695 | 32 |
| Port-specific VLAN tags—maximum number of port-specific VLAN tags. | ExtremeSwitching X460-G2, X590 , X465, X690 | 1,023 |
| | ExtremeSwitching X450-G2, X440-G2, X620, X695 | N/A |
| Port-specific VLAN tags—maximum number of port-specific VLAN tag ports. | ExtremeSwitching X460-G2, X590, X465, X690 | 4,000 |
| | ExtremeSwitching X450-G2, X440-G2, X620, X695 | N/A |
| VLAN Port Interfaces (VPIF)—maximum number of VLAN port interfaces. | ExtremeSwitching X460-G2 | 65,536 |
| | ExtremeSwitching X465, X590, X690, X695 | 131,585 |

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

| Metric | Product | Limit |
|---|---|---|
| VRRP (v2/v3-IPv4) (maximum instances)—maximum number of VRRP instances for a single switch, with Advanced Edge license or higher.<br><br>**Note:** These limits are applicable for Fabric Routing configuration also.<br><br>**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 X460-G2, X450-G2, X590, X465, X690, X695 | 511 |
| | ExtremeSwitching X440-G2, X620 | 128 |
| | **Scaled Mode (with groups):** | |
| | ExtremeSwitching X460-G2, X450-G2, X590, X465, X690, X695 | 2,048 |
| | ExtremeSwitching X440-G2, X620 | 128 |
| 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)<br><br>**Note:** These limits are applicable for Fabric Routing configuration also.<br><br>**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 X460-G2, X450-G2, X590, X465, X690, X695 | 511 |
| | ExtremeSwitching X440-G2, X620 | 128 |
| | **Scaled Mode (with groups):** | |
| | ExtremeSwitching X460-G2, X450-G2, X590, X465, X690, X695 | 2,048 |
| | ExtremeSwitching X440-G2, X620 | 128 |
| VRRP (v2/v3-IPv4/IPv6) (maximum VRID)—maximum number of unique VRID numbers per switch. | ExtremeSwitching X460-G2, X450-G2 X440-G2, X620, X590, X465, X690, X695<br><br>**Note:** With Advanced Edge license or higher. | 255 |
| VRRP (v2/v3-IPv4/IPv6) (maximum VRIDs per VLAN)—maximum number of VRIDs per VLAN. | ExtremeSwitching X460-G2, X450-G2 X440-G2, X620, X590, X465, X690, X695<br><br>**Note:** With Advanced Edge license or higher. | 255 |
| VRRP (v2/v3-IPv4/IPv6) (maximum ping tracks)—maximum number of ping tracks per VLAN. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695<br><br>**Note:** With Advanced Edge license or higher. | 8 |

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

| Metric | Product | Limit |
|---|---|---|
| **VRRP (maximum ping tracks)**—maximum number of ping tracks per VRRP Instance under 128 VRRP instances, with Advanced Edge license or higher. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, 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 X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, 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 X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 8 |
| **VRRP (v2/v3-IPv4/IPv6)**—maximum number of VLAN tracks per VLAN. | ExtremeSwitching X450-G2, X460-G2, X620, X440-G2, X590, X465, X690, X695 | 8 |
| **VXLAN**—maximum virtual networks.<br><br>**Note:** Every VPLS instance/ PSTag VLAN reduces this limit by 1.<br><br>**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. | ExtremeSwitching X590, X465, X690, X695<br><br>ExtremeSwitching X460-G2, X450-G2, X440-G2, X620 | 2,048–4,000<br><br>N/A |
| **VXLAN**—maximum tenant VLANs plus port combinations<br><br>**Note:** Every (VPLS/PSTag VLAN) + port reduces the limit by 1. | ExtremeSwitching X590, X465, X690, X695<br><br>ExtremeSwitching X460-G2, X450-G2, X440-G2, X620 | 4,096<br><br>N/A |

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

| Metric | Product | Limit |
|---|---|---|
| VXLAN—maximum static MAC to IP bindings.<br><br>Note: Every FDB entry configured reduces this limit by 1. | ExtremeSwitching X590, X465, X690, X695<br><br>ExtremeSwitching X460-G2, X450-G2, X440-G2, X620 | 64,000<br><br>N/A |
| VXLAN—maximum RTEP IP addresses | ExtremeSwitching X590, X465, X690, X695<br><br>ExtremeSwitching X460-G2, X450-G2, X440-G2, X620 | 512<br><br>N/A |
| VXLAN—maximum virtual networks with dynamic learning and OSPF extensions for VXLAN | ExtremeSwitching X590, X465, X690, X695<br><br>ExtremeSwitching X460-G2, X450-G2, X440-G2, X620 | 4,000<br><br>N/A |
| VXLAN—or replicator role, maximum number of attached leafs per switch. | ExtremeSwitching X465, X590,, X690, X695 | 256 |

## Core License Limits

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

**Table 10: Supported Limits for Core License**

| Metric | Product | Limit |
|---|---|---|
| Anycast RP Using PIM—maximum number of IPv4 Anycast RP set per VR. | ExtremeSwitching X440-G2, X450-G2, X460-G2, X620, X590, X465, X690, X695 | 32 |
| Anycast RP Using PIM—maximum number of IPv6 Anycast RP set per VR. | ExtremeSwitching X440-G2, X450-G2, X460-G2, X620, X590, X465, X690, X695 | 32 |
| Anycast RP Using PIM—RP peers per Anycast RP set. | ExtremeSwitching X440-G2, X450-G2, X460-G2, X620, X590, X465, X690, X695 | 10 |
| BGP (aggregates)—maximum number of BGP aggregates. | ExtremeSwitching X460-G2, X590, X465, X690, X695<br><br>ExtremeSwitching X450-G2 | 256<br><br>204 |
| BGP (networks)—maximum number of BGP networks. | ExtremeSwitching X460-G2, X590, X465, X690, X695<br><br>ExtremeSwitching X450-G2 | 1,024<br><br>820 |

**Table 10: Supported Limits for Core License (continued)**

| Metric | Product | Limit |
|---|---|---|
| **BGP (peers)**—maximum number of BGP peers.<br><br>**Note:** With default keepalive and hold timers.<br><br>**Note:** Each BGPv4/BGPv6 peer handles a maximum of 50 routes.<br><br>**Note:** ECMP should not be enabled for BGP. | ExtremeSwitching X460-G2 | 128 |
| | ExtremeSwitching X590, X465, X690, X695 | 300 |
| | ExtremeSwitching X450-G2 | 100 |
| **BGP (peer groups)**—maximum number of BGP peer groups. | ExtremeSwitching X460-G2, X590, X465, X690, X695 | 64 |
| | ExtremeSwitching X450-G2 | 50 |
| **BGP (policy entries)**—maximum number of BGP policy entries per route policy. | ExtremeSwitching X460-G2, X590, X465, X690, X695 | 256 |
| | ExtremeSwitching X450-G2 | 204 |
| **BGP (policy statements)**—maximum number of BGP policy statements per route policy. | ExtremeSwitching X460-G2, X590, X465, X690, X695 | 1,024 |
| | ExtremeSwitching X450-G2 | 820 |
| **BGP multicast address-family routes**—maximum number of multicast address-family routes. | ExtremeSwitching X460-G2, X590, X465, X690, X695 | 25,000 |
| | ExtremeSwitching X450-G2 | 20,000 |
| **BGP (unicast address-family routes)**—maximum number of unicast address-family routes. | ExtremeSwitching X460-G2, X590, X465, X695 (at default) | 25,000 |
| | ExtremeSwitching X590, X465 (with ALPM enabled) | 100,000 |
| | ExtremeSwitching X450-G2 | 20,000 |
| **BGP (non-unique routes)**—maximum number of non-unique BGP routes. | ExtremeSwitching X460-G2, X590, X465, X690, X695 | 25,000 |
| | ExtremeSwitching X450-G2 | 20,000 |
| **BGP ECMP**—maximum number of equal cost paths per multipath for BGP and BGPv6. | ExtremeSwitching X460-G2, X590, X465, X690, X695 | 2, 4, 8, 16, 32, or 64 |
| | ExtremeSwitching X450-G2 | 64 |
| **BGPv6 (unicast address-family routes)**—maximum number of unicast address family routes. | ExtremeSwitching X460-G2 | 6,000 |
| | ExtremeSwitching X590, X465, X690, X695 | 10,000 |
| | ExtremeSwitching X450-G2 | 4,800 |

**Table 10: Supported Limits for Core License (continued)**

| Metric | Product | Limit |
|---|---|---|
| **BGPv6 (non-unique routes)**—maximum number of non-unique BGP routes. | ExtremeSwitching X460-G2 | 18,000 |
| | ExtremeSwitching X590, X465, X690, X695 | 24,000 |
| | ExtremeSwitching X450-G2 | 14,000 |
| **EVPN EVI instances**—maximum number of EVI instances. | ExtremeSwitching X590, X465, X690, X695 | 1,024 |
| **EVPN LAGs**—maximum number of LAGs. | ExtremeSwitching X590, X465, X690, X695 | 128 |
| **GRE Tunnels**—maximum number of GRE tunnels. | ExtremeSwitching X460-G2, X450-G2, X590, X465, X690, X695 | 255 |
| | ExtremeSwitching X620, X440-G2 | N/A |
| **IS-IS adjacencies**—maximum number of supported IS-IS adjacencies. | ExtremeSwitching X460-G2, X590, X465, X690, X695 | 128 |
| | ExtremeSwitching X450-G2 | N/A |
| **IS-IS ECMP**—maximum number of equal cost paths per multipath for IS-IS. | ExtremeSwitching X460-G2, X590, X465, X690, X695 | 2, 4, or 8 |
| | ExtremeSwitching X450-G2 | N/A |
| **IS-IS interfaces**—maximum number of interfaces that can support IS-IS. | ExtremeSwitching X460-G2, X590, X465, X690, X695 | 255 |
| | ExtremeSwitching X450-G2 | N/A |
| **IS-IS routers in an area**—recommended maximum number of IS-IS routers in an area. | ExtremeSwitching X460-G2, X590, X465, X690, X695 | 256 |
| | ExtremeSwitching X450-G2 | N/A |
| **IS-IS route origination**—recommended maximum number of routes that can be originated by an IS-IS node. | ExtremeSwitching X460-G2, X590, X465, X690, X695 | 20,000 |
| | ExtremeSwitching X450-G2 | N/A |
| **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 X460-G2, X590, X465, X690, X695 | 25,000 |
| | ExtremeSwitching X450-G2 | N/A |
| **IS-IS IPv4 L2 routes**—recommended maximum number of IS-IS Level 2 routes. | ExtremeSwitching X460-G2, X590, X465, X690, X695 | 25,000 |
| | ExtremeSwitching X450-G2 | N/A |
| **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 X460-G2, X590, X465, X690, X695 | 20,000 |
| | ExtremeSwitching X450-G2 | N/A |

**Table 10: Supported Limits for Core License (continued)**

| Metric | Product | Limit |
|---|---|---|
| **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 X460-G2, X590, X465, X690, X695 | 10,000 |
| | ExtremeSwitching X450-G2 | N/A |
| **IS-IS IPv6 L2 routes**—recommended maximum number of IS-IS Level 2 routes. | ExtremeSwitching X460-G2, X590, X465, X690, X695 | 10,000 |
| | ExtremeSwitching X450-G2 | N/A |
| **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 X460-G2, X590, X465, X690, X695 | 10,000 |
| | ExtremeSwitching X450-G2 | N/A |
| **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 X460-G2, X590, X465, X690, X695 | 20,000 |
| | ExtremeSwitching X450-G2 | N/A |
| **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 X460-G2, X590, X465, X690, X695 | 20,000 |
| | ExtremeSwitching X450-G2 | N/A |
| **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 X460-G2, X590, X465, X690, X695 | 20,000 |
| | ExtremeSwitching X450-G2 | N/A |
| **MSDP active peers**—maximum number of active MSDP peers. | ExtremeSwitching X450-G2, X460-G2, X590, X465, X690, X695 | 64 |
| **MSDP SA cache entries**—maximum number of entries in SA cache. | ExtremeSwitching X590, X465, X690, X695 | 14,000 |
| | ExtremeSwitching X450-G2 | 8,000 |
| | ExtremeSwitching X460-G2 | 10,000 |
| **MSDP maximum mesh groups**—maximum number of MSDP mesh groups. | ExtremeSwitching X450-G2, X460-G2, X590, X465, X690, X695 | 16 |

**Table 10: Supported Limits for Core License (continued)**

| Metric | Product | Limit |
|---|---|---|
| **OSPFv2/v3 ECMP**—maximum number of equal cost multipath OSPFv2 and OSPFv3. | ExtremeSwitching X460-G2, X450-G2, X590, X465, X690, X695 | 64 |
| **OSPFv2 areas**—as an ABR, how many OSPF areas are supported within the same switch. | ExtremeSwitching X450-G2, X460-G2, X590, X465, X690, X695 | 8 |
| **OSPFv2 external routes**—recommended maximum number of external routes contained in an OSPF LSDB. | ExtremeSwitching X590, X465, X690, X695 | 10,000 |
| | ExtremeSwitching X460-G2 | 5,000 |
| | ExtremeSwitching X450-G2 | 4,000 |
| **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 X590, X465, X690, X695 | 4,000 |
| | ExtremeSwitching X460-G2 | 2,000 |
| | ExtremeSwitching X450-G2 | 1,600 |
| **OSPFv2 inter-vr or leaking routes—**recommended maximum number of inter-vr routes contained in an OSPF LSDB. | ExtremeSwitching X590, X465, X690, X695, X460-G2 | 2,000 |
| | ExtremeSwitching X450-G2, X440-G2, X620 | 1,000 |
| **OSPFv2 interfaces**—recommended maximum number of OSPF interfaces on a switch (active interfaces only). | ExtremeSwitching X460-G2, X590, X465, X690, X695 | 400 |
| | ExtremeSwitching X450-G2 | 320 |
| **OSPFv2 links**—maximum number of links in the router LSA. | ExtremeSwitching X460-G2, X590, X465, X690, X695 | 400 |
| | ExtremeSwitching X450-G2 | 320 |
| **OSPFv2 neighbors**—maximum number of supported OSPF adjacencies. | ExtremeSwitching X460-G2, X590, X465, X690, X695 | 128 |
| | ExtremeSwitching X450-G2 | 96 |
| **OSPFv2 routers in a single area**—recommended maximum number of routers in a single OSPF area. | ExtremeSwitching X590, X465, X690, X695 | 100 |
| | ExtremeSwitching X460-G2 | 50 |
| | ExtremeSwitching X450-G2 | 40 |
| **OSPFv2 virtual links**—maximum number of supported OSPF virtual links. | ExtremeSwitching X460-G2, X590, X465, X690, X695 | 32 |
| | ExtremeSwitching X450-G2 | 25 |
| **OSPFv3 areas**—as an ABR, the maximum number of supported OSPFv3 areas. | ExtremeSwitching X590, X465, X690, X695 | 100 |
| | ExtremeSwitching X460-G2 | 16 |
| | ExtremeSwitching X450-G2 | 12 |

**Table 10: Supported Limits for Core License (continued)**

| Metric | Product | Limit |
|---|---|---|
| **OSPFv3 external routes**—recommended maximum number of external routes. | ExtremeSwitching X460-G2, X590, X465, X690, X695 | 10,000 |
| | ExtremeSwitching X450-G2 | 7,500 |
| **OSPFv3 inter- or intra-area routes**—recommended maximum number of inter- or intra-area routes. | ExtremeSwitching X590, X465, X690, X695 | 4.000 |
| | ExtremeSwitching X460-G2 | 3,000 |
| | ExtremeSwitching X450-G2 | 500 |
| **OSPFv3 interfaces**—maximum number of OSPFv3 interfaces (active interfaces only). | ExtremeSwitching X460-G2, X590, X465, X690, X695 | 256 |
| | ExtremeSwitching X450-G2 | 192 |
| **OSPFv3 neighbors**—maximum number of OSPFv3 neighbors. | ExtremeSwitching X460-G2, X590, X465, X690, X695 | 64 |
| | ExtremeSwitching X450-G2 | 48 |
| **OSPFv3 virtual links**—maximum number of OSPFv3 virtual links supported. | ExtremeSwitching X460-G2, X590, X465, X690, X695 | 16 |
| | ExtremeSwitching X450-G2 | 12 |
| **PIM IPv4 (maximum interfaces)**—maximum number of PIM active interfaces. | ExtremeSwitching X450-G2, X460-G2, X590, X465, X690, X695 | 255 |
| **PIM IPv4 Limits**—maximum number of multicast groups per dynamic rendezvous point. | ExtremeSwitching X450-G2, X460-G2, X590, X465, X690, X695 | 180 |
| **PIM IPv4 Limits**—maximum number of multicast groups per static rendezvous point. | ExtremeSwitching X450-G2, X460-G2, X590, X465, X690, X695 | 3,000 (depends on policy file limits) |
| **PIM IPv4 Limits**—maximum number of multicast sources per group. | ExtremeSwitching X450-G2, X460-G2, X590, X465, X690, X695 | 5,000 |
| **PIM IPv4 Limits**—maximum number of dynamic rendezvous points per multicast group. | ExtremeSwitching X450-G2, X460-G2, X590, X465, X690, X695 | 145 |
| **PIM IPv4 Limits**—static rendezvous points. | ExtremeSwitching X450-G2, X460-G2, X590, X465, X690, X695 | 32 |
| **PIM IPv6 (maximum interfaces)**—maximum number of PIM active interfaces. | ExtremeSwitching X450-G2, X460-G2, X590, X465, X690, X695 | 255 |

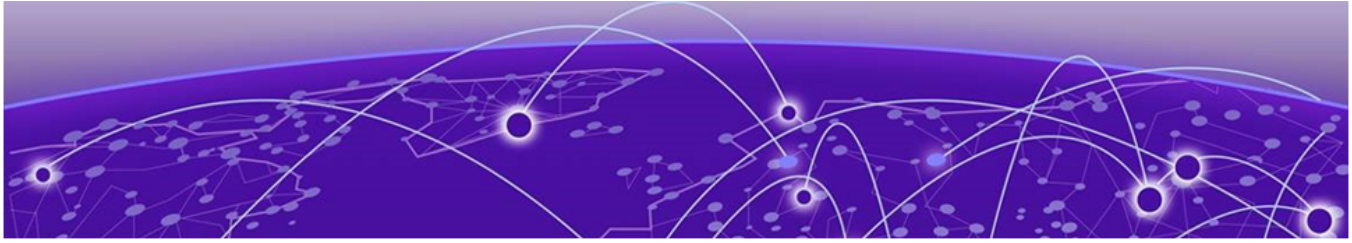
**Table 10: Supported Limits for Core License (continued)**

| Metric | Product | Limit |
|---|---|---|
| **PIM IPv6 Limits**—maximum number of multicast sources per group. | ExtremeSwitching X460-G2, X590, X465, X690, X695 | 1,750 |
| | ExtremeSwitching X450-G2 | 1,500 |
| **PIM IPv6 Limits**—maximum number of multicast groups per dynamic rendezvous point. | ExtremeSwitching X450-G2, X460-G2, X590, X465, X690, X695 | 70 |
| **PIM IPv6 Limits**—maximum number of multicast groups per static rendezvous point. | ExtremeSwitching X450-G2, X460-G2, X590, X465, X690, X695 | 3,000 (depends on policy file limits) |
| **PIM IPv6 Limits**—maximum number of dynamic rendezvous points per multicast group. | ExtremeSwitching X450-G2, X460-G2, X590, X465, X690, X695 | 64 |
| **PIM IPv6 Limits**—maximum number of secondary addresses per interface. | ExtremeSwitching X450-G2, X460-G2, X590, X465, X690, X695 | 70 |
| **PIM IPv6 Limits**—static rendezvous points. | ExtremeSwitching X450-G2, X460-G2, X590, X465, X690, 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 Edge Switching 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



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

## Open Issues in ExtremeXOS 32.7.1

The following are new open issues for supported features found in version 32.7.1:

**Table 11:**

| Defect Number | Description |
|---|---|
| **General** | |
| EXOS-36140 | Checkpointing is not done on the stack for DHCP snooping fingerprinting. |
| **Chalet** | |
| EXOS-35888 | Keystrokes not in Sync with CLI terminal window over HTTPS. When using the CLI terminal through the HTTPS URL, keystrokes are not in sync with what is displayed in the window.<br>Workaround: Use the URL with HTTP. |

## Known Behaviors

The following is a limitation in EXOS architecture that has yet to be resolved.

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

| Defect Number | Description |
|---|---|
| General | |
| EXOS-35439 | "Error in script "/tmp/instaPortSetup.xsf" message is received when trying to assign an instant port profile to a port that has already been configured. All port configuration must be deleted before assigning an instant port profile to a port. |

## Resolved Issues in ExtremeXOS 32.7.3.15

The following issues were resolved in ExtremeXOS 32.7.3.15. Version 32.7.3.15 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, and 32.7.x.

**Table 13: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 32.7.3.15**

| Defect Number | Description |
|---|---|
| General | |
| CFD-13586 | MIB files posted in the portal have the wrong checksum values. |
| CFD-13724 | Optics with part number 10434 are shown as "unsupported". |
| CFD-13806 | 10067 optic doesn't link up after a restart if the port is configured for **`auto-negotiation off speed 100 duplex full.`** |
| CFD-13826 | IDM role based VLANs are not working as expected. |
| CFD-13853 | IGMP receivers are learned on the wrong MLAG ports after a restart of the MLAG peer or a restart of multiple MLAG ports at the same time. |
| CFD-13921 | New telnet session couldn't be created to the switch when the software is being installed. |
| CFD-13933 | Process Policy crashes with signal 6 leading to switch restarts. |
| CFD-13943 | Traffic is briefly looped on multi-slot LAG ports when one of the slots is restarted. |
| CFD-13964 | SNMPmaster process crash occurs when configuring the SNMP username with a space. |
| CFD-14004 | The cloud-connector process has a memory leak when the switch contains multiple STP domains. |
| CFD-14036 | The ISC port is not added back to FA VLANs even after the restarted Fabric Attach MLAG peer is up. |
| CFD-14104 | The link doesn't always come up while using 10070H optics. |
| CFD-14113 | Output of CLI **`show meter out-of-profile ports`**[] is not displaying counter values. |

**Table 13: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 32.7.3.15 (continued)**

| Defect Number | Description |
|---|---|
| CFD-14139 | Switch restarts due to EDP process crash while polling an OID with the wrong table indices. |
| CFD-14152 | STP-related configuration is lost on the primary port of the LAG when sharing is disabled/enabled even though auto-bind is enabled for that VLAN. |
| EXOS-38127 | Multiple telegraf processes are simultaneously running on the switch. |
| EXOS-37870 | New feature: Fabric Attach - support MVRP for VLAN management - Static NSI Offset. |

## Resolved Issues in ExtremeXOS v32.7.2-Patch1-32

The following issues were resolved in ExtremeXOS v32.7.2-Patch1-32. Version 32.7.2-Patch1-32 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, and 32.7.x.

**Table 14: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in v32.7.2-Patch1-32**

| Defect Number | Description |
|---|---|
| General | |
| CFD-11713 | Link goes down randomly on ports with 100Fx optics inserted in it. |
| CFD-12789 | With IPMC fast-path forwarding configuration in place, packets destined to local-network-range are not getting flooded anymore. |
| CFD-12892 | ELRP HW assist flooding the network on Universal platforms. |
| CFD-12989 | In a standalone X465 switch, the IGMP receiver is not learned if the same source is learned as a sender in IGMP snooping. |
| CFD-13058 | Policy was not enabled due to resource allocation in X440-G2 platforms. |
| CFD-13241 | SNMP stops responding briefly after sending two consecutive save config snmpset. |
| CFD-13290 | After copying an EMS filter having strict match conditions to a new EMS filter, Climaster process crash occurs while executing the **`show configuration ems`** command. |
| CFD-13300 | Process rtmgr crashes leading to switch restart. |
| CFD-13325 | NAC client IP address resolved using ExtremeXOS Identity Management are printed in reverse order when they are fetched via SNMP commands. |
| CFD-13375 | VOSS Zero Touch Fabric LLDP packet removes Fabric Attach bindings when it was received before LACP is completed. |
| CFD-13376 | The following error is displayed: Command parse token stack overflow while using tab in the command: **`show iproute ipv4`**. |

**Table 14: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in v32.7.2-Patch1-32 (continued)**

| Defect Number | Description |
|---|---|
| CFD-13388 | Can't exit out of the output of the **`show ports vlan statistics no-refresh`** command. |
| CFD-13430 | When the switch receives IGMP packet on its to-port of remote-mirroring, and if packet tag matches remote-mirroring tag, the switch sends back the same packet on the received port. |
| CFD-13510 | Incorrect value is returned when polling the IfOperstatus of a stack slot that's powered off. |
| CFD-13517 | Inconsistent logging behavior when a failsafe login fails. |
| CFD-13552 | Memory depletion in the backup node due to a memory leak in the LLDP process. |
| CFD-13588 | SNMP trap Virtual Router configuration is applied incorrectly when it is done using SNMPSet operation. |
| CFD-13605 | BFD flag/configuration is not reset when executing the **`disable bfd vlan`** and **`unconfigure bfd vlan`** commands. |
| CFD-13616 | Generic error is returned while trying to delete a node alias entry using SNMP in a stack. |
| CFD-13632 | Memory leak in expy3 process while polling LLDP information that contains a custom TLV with subtype 0. |
| CFD-13655 | ARP entry is not properly learned when a host moves from one sub-VLAN to another sub-VLAN |
| EXOS-37877 | Unable to delete node alias entries associated with the ports from backup/standby slots using SNMP set. |

## Resolved Issues in ExtremeXOS v32.7.2

The following issues were resolved in ExtremeXOS v32.7.2. Version 32.7.2 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, and 32.7.x.

**Table 15: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in v32.7.2**

| Defect Number | Description |
|---|---|
| General | |
| CFD-12508 | Not all Fabric Attach assignments are sent from the Fabric Attach proxy to the Fabric Attach server in certain scenarios. |
| CFD-12951 | EDP process crash occurs when executing [extremeEdpNeighborTable\|https://mibs.observium.org/mib/EXTREME-EDP-MIB/#extremeEdpNeighborTable] table. |
| CFD-12969 | Continuous memory depletion occurs while polling DHCP snooping entries that contain Option code 0 via REST API. |

**Table 15: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in v32.7.2 (continued)**

| Defect Number | Description |
|---|---|
| CFD-13035 | The following error log displays in a switch randomly: `<Warn:HAL.FDB.MacVlanAddFail> MAC-based VLAN entry 00:50:B6:BB:D2:17 vlan 100 addition to port 17 failed, Table full` |
| CFD-13108 | Switch crashes when the internal dynamic VLAN counter becomes 0. |
| CFD-13156 | Upgrading the switch through Chalet fails. |
| CFD-13157 | SNMP timeout occurs after enabling device and port statistics in ExtremeCloud IQ - Site Engine. |
| CFD-13159 | While fetching optic information for bi-directional GBICs for the command line, the output displays opposite directions than intended one. |
| CFD-13168 | ELRP Dynamic VLAN interval timers does not work. |
| EXOS-37198 | Need provision to get logs for certain SNMP events, such as authorization failures. |
| SummitStack | |
| CFD-12878 | When a slot boots up in a stack, SNMP traps are generated for ports even though those ports are marked as not present in the slot. |
| | |

## Resolved Issues in ExtremeXOS v32.7.1-Patch1-68

The following issues were resolved in ExtremeXOS v32.7.1-Patch1-49. Version 32.7.1-Patch1-49 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, and 32.7.x.

**Table 16: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in v32.7.1-Patch1-68**

| Defect Number | Description |
|---|---|
| General | |
| CFD-12331 | When the UPM profile is associated with any UPM timer, then the successive UPM profiles are not getting listed in "show UPM profile" output. |
| CFD-12337 | IPP is triggered for clients learned on a tagged VLAN. |
| CFD-12364 | Incorrect values are returned when ipNetToPhysicalType is polled. |
| CFD-12401 | ZTP using a USB does not load the port-related configuration. |
| CFD-12521 | Enhancement needed in the warning message that appears when the part-partition setting is changed. |
| CFD-12565 | UPM memory leak occurs when triggering an IPP rule. |

**Table 16: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in v32.7.1-Patch1-68 (continued)**

| Defect Number | Description |
|---|---|
| CFD-12577 | Policy can't be enabled after restarting. |
| CFD-12582 | Netlogin clients are not getting authenticated into tenant VLAN if the same VLAN was added manually to the port and then removed. |
| CFD-12613 | Ports are flapping continuously after restarting when auto-polarity was turned off and the peer switch port was configured with a speed of 100 Mbps. |
| SummitStack | |
| CFD-12504 | The amber light does not glow when a fan is removed from a stack slot. |
| CFD-12662 | Response for several CLI commands is very slow after running cablediags on stacks. |

## Resolved Issues in ExtremeXOS 32.7.1-Patch1-49

The following issues were resolved in EXOS 32.7.1-Patch1-49. Version 32.7.1-Patch1-49 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, and 32.7.x.

**Table 17: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 32.7.1-Patch1-49**

| Defect Number | Description |
|---|---|
| General | |
| CFD-11338 | Option to synchronize the files created in the primary slot to the backup is included in the **`synchronize`** command. |
| CFD-11544 | Fabric Attach triggered signaling doesn't work when the NSID mapping occurs dynamically. |
| CFD-11789 | Unable to initiate SSH or telnet access to neighboring switches when port isolation is turned on in the connected port. |
| CFD-11816 | The ELRP process crashes when ELRP with Hardware Assist is enabled and is run on a VLAN that has more than 128 ports. |
| CFD-11819 | Configuration or the dos-protect detail output does not reflect when the management port is configured as a trusted-port. |
| CFD-11835 | SNMP response to polling times out sometimes when SNMP inform is generated to unreachable trap receivers. |
| CFD-11854 | ARP proxy is not working when ARP entry is present on a proxy configured switch. |
| CFD-11890 | Unable to query LLDP information using REST. |
| CFD-11970 | Enforcing OnePolicy fails with RESTCONF errors. |

**Table 17: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 32.7.1-Patch1-49 (continued)**

| Defect Number | Description |
|---|---|
| CFD-12034 | Software returns different PVID values when dynamic authentication is done on the port while polling for dot1qPvid OID. |
| CFD-12094 | SNMP response to bulk requests is slow sometimes in Universal switches. |
| CFD-12182 | AAA process crash occurs when pushing 64 DACLs. |
| CFD-12184 | SNMP user with privacy protocol AES-256 is not working after upgrading switches. |
| CFD-12239 | In certain platforms like X435, X465, and 4120, L3 routed packets with dot1q header having CFI/DEI bit set to 1 is processed in the CPU. |
| EXOS-36920 | Configuration push from ExtremeCloud IQ 24r6 fails on an X435. |

## Resolved Issues in ExtremeXOS 32.7.1-Patch1-26

The following issues were resolved in EXOS 32.7.1-Patch1-26. Version 32.7.1-Patch1-26 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, and 32.7.x.

**Table 18: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 32.7.1-Patch1-26**

| Defect Number | Description |
|---|---|
| General | |
| CFD-11320 | Multicast delay occurs in MLAG test setup. |
| CFD-11394 | Memory leak OCCURS in SNMPD process due to failed requests. |
| CFD-11450 | When DHCP-Snooping is configured only on a PVLAN edge-port, DHCP bindings are not populated properly. |
| CFD-11454 | Process VLAN crashes with signal 6 leading to a switch restart. |
| CFD-11465 | Port ID is incorrectly displayed when we poll the dot1d port table. |
| CFD-11468 | Policy is disabled after switch restarts. |
| CFD-11491 | Configuration wrongly displays all events are deleted in default filter when a particular event is excluded. |
| CFD-11550 | ARP Packets are not forwarded properly in the stack that contains X695 series and X690 series switches. |
| CFD-11625 | Unable to enforce policy profile from ExtremeCloud IQ-SE when the profile has cos options enabled. |
| CFD-11692 | ELRP wrongly detects a loop when both the tenant VLAN and non-tenant VLAN are present in the ISC port. |

**Table 18: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 32.7.1-Patch1-26 (continued)**

| Defect Number | Description |
|---|---|
| CFD-11700 | Scheduled restart is not working as scheduled when the SNTP-client updates the switch time dynamically. |
| CFD-11753 | A few IpsystemStatsTable entries are always zero. |
| CFD-11786 | In an ExtremeXOS stack, console access to TPVM fails. |
| EXOS-36221 | Process VLAN crashes with signal 6 leading to a switch restart. |
| EXOS-36378 | Process snmpMaster crashes with signal 6 causing a switch restart. |
| X450-G2 | |
| CFD-11447 | CLI session freezes after executing a few CLI commands in ExtremeXOS switches. |

## Resolved Issues in ExtremeXOS 32.7.1

The following issues were resolved in EXOS 32.7.1. Version 32.7.1 includes all fixes up to and including versions 31.6, 31.7, 32.1, 32.2, 32.3, 32.4, 32.5, and 32.6.x.

**Table 19: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 32.7.1**

| Defect Number | Description |
|---|---|
| General | |
| CFD-9602 | When a new dot1x client is authenticated on a port, the accounting stop is not sent for the old dot1x client and the accounting start is not sent for the new client. |
| CFD-9616 | Router-discovery configurations were missing after disabling/enabling VRRP instance. |
| CFD-9636 | Static fdb VxLAN entry is programmed with 30 minutes delay after switch restarts, even when the VxLAN tunnel is UP. |
| CFD-9690 | Error message is not generated when there are failures in installing ACL rules enforced from XIQ-SE though policy profile. |
| CFD-9694 | ACL Signal 11 crash is observed when ACL is added from a script and the process crash causes a switch reboot. |
| CFD-9882 | IDmgr critical log was seen when flapping the port with 1000+ dynamically created VLANs. |
| CFD-9919 | Switch restarts because of a kernel crash. |
| CFD-9973 | CLI session hangs when applying PBR policy whose file name is 32 characters, and when file name exceeds 32 characters policy check fails. |
| CFD-9996 | On a stack, the backup and Standby Slot port configuration information is not returned when ExtremePortConfigTable is polled. |

**Table 19: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 32.7.1 (continued)**

| Defect Number | Description |
|---|---|
| CFD-10072 | VRRP hello's were dropped when its forwarded over ISC. |
| CFD-10120 | SNMP traps were not getting generated when there is an IP Security ARP violation despite the corresponding configuration being present in the switch. |
| CFD-10255 | Netlogin Client not learnt on port after STP convergence. |
| CFD-10300 | FDB process crash was seen when polling fdb.ipNetToPhysicalEnt MIB. |
| CFD-10311 | A local file will be used to restore DHCP-binding information if the remote server is unreachable. |
| CFD-10352 | Policy (.pol) files imported via the "Download URL" command are not synced to the backup node on summit stack switches. |
| CFD-10416 | rtmgr process crash was seen when enabling BFD on ipv6 prefix. |
| CFD-10466 | SSH-RSA public key authentication method fails with error "no mutual signature algorithm" in SSH client. |
| CFD-10474 | `unconfigure switch all` does not remove the configure system port notation setting |
| CFD-10475 | Netlogin allowed-uses does not work as expected. |
| CFD-10494 | mcmgr process crash was seen when fast-leave is enabled and receiving leave message. |
| CFD-10575 | Error was seen when executing `config account admin encrypted <pwd>` command. |
| CFD-10583 | .cfg file transferred to swtich not available for use until reboot or copied to another file. |
| CFD-10613 | Resource leak was seen in the hardware when deleting all ports in a VLAN. |
| CFD-10614 | SSH key becomes invalid sometimes during the reboot of the switch. |
| CFD-10688 | Accounts created using encrypted password, the expiry date was not shown. |
| CFD-10754 | XML-Notification was not sent with the configured source IP. |
| CFD-10781 | ACL process crash was seen when applying a policy with match condition OSPF on the VLAN. |
| CFD-10816 | User list in Chalet becomes empty/blank when the number of users is one. |
| CFD-10918 | L2VPN service name with 32 characters can hang CLI session. |
| CFD-10946 | Switch brings up the ports when diagnostics tests are running. |
| CFD-10968 | MVRP VLAN is not check-pointed to the MLAG peer when the corresponding remote MLAG port is inactive. |

**Table 19: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 32.7.1 (continued)**

| Defect Number | Description |
|---|---|
| CFD-11018 | Polling the dot1dTpFdbTable information through SNMP returns the value with an additional octet. |
| CFD-11160 | Memory leak is observed in VLAN process when there are port flaps. |
| EXOS-31480 | After a stack restart, a 25 Gbps port inserted with a 10 Gbps 10301 optic transceiver goes down in Backup and Standby nodes. |
| EXOS-31609 | Loop is observed in MLAG topology when MACSEC is enabled on MLAG ports. |
| EXOS-32500 | DM error was seen when sending IPARP packets more than configured entries. |
| EXOS-32696 | File uploaded from Chalet are not synced with the backup slot |
| EXOS-33307 | Dot1x clients are randomly admin-reset as soon as they are authenticated. |
| EXOS-33850 | Stack was rebooted after executing disable/enable mirror when stack port was added as loopback port in mirroring. |
| EXOS-35861 | "Supported Limits" will need to change to TBD values for 7520/7720 IPv4 and IPv6 routes in hardware. (Perhaps 256K IPv4 and 128K IPv6 64-bit, depends on test results). |
| X440-G2 Series Switches | |
| CFD-10407 | MACsec ports are not active after switch reboot. |
| X435 Series Switches | |
| EXOS-33298 | expy process crashes with signal 6 observed sometimes. |
| Summit Stack | |
| CFD-9627 | Image was not synced to standby node in the stack when copying the image by using SFTP put in the server. |
| CFD-9840 | MLT session was not up after enable/disable jumbo-frames when EXOS stack is enabled with VPEX. |
| CFD-10056 | Error message was seen when creating LAG with Master and backup node VIM ports. |
| CFD-10508 | ARP probe packets are sent from the backup slot in a stack with its own physical MAC-address as the source-address. |
| CFD-10647 | Switch started to respond for ARP requests with source MAC address as all zeroes or VRRP MAC. |
| VPEX | |
| CFD-9531 | The show tech-support gets stuck at "show vpex" command with specific VPEX configuration. |
| CFD-9884 | HAL process crash was seen when sending multicast packets to more than 33 BPEs and when disabling/enabling the ports in a BPE. |