ExtremeXOS Release Notes

Software Version ExtremeXOS 30.7.3-Patch1-19

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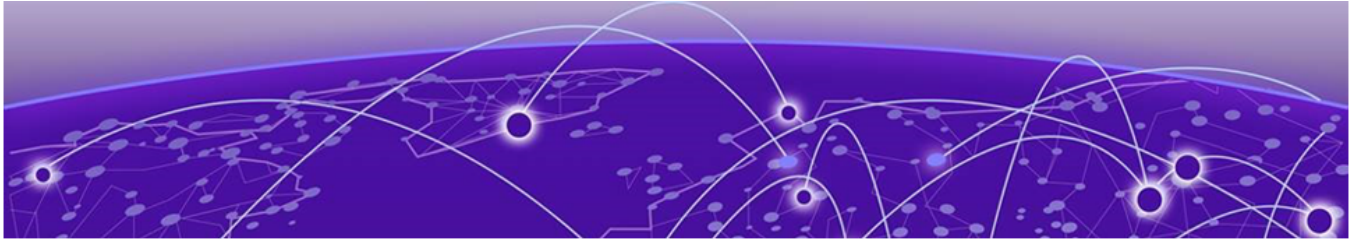

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Preface

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 ExtremeSwitching switches or SLX 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
	Caution	Risk of personal injury, system damage, or loss of data
	Warning	Risk of severe personal injury

Table 2: Text

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

Table 3: Command syntax

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

Platform-Dependent Conventions

Unless otherwise noted, all information applies to all platforms supported by 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 switch 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 *switch*.

Send Feedback

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

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

To send feedback, do either of the following:

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

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

Help and Support

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

Extreme Portal

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

The Hub

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

Call GTAC

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

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

- Your Extreme Networks service contract number, or serial numbers for all involved Extreme Networks products
- A description of the failure
- A description of any actions already taken to resolve the problem

- A description of your network environment (such as layout, cable type, other relevant environmental information)
- Network load at the time of trouble (if known)
- The device history (for example, if you have returned the device before, or if this is a recurring problem)
- Any related RMA (Return Material Authorization) numbers

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1. Go to The Hub.
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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.

Related Publications

ExtremeXOS Publications

- *ACL Solutions Guide*
- *ExtremeXOS 30.7 Command Reference Guide*
- *ExtremeXOS 30.7 EMS Messages Catalog*
- *ExtremeXOS 30.7 Feature License Requirements*
-
- *ExtremeXOS 30.7 User Guide*
- *ExtremeXOS Quick Guide*
- *ExtremeXOS Release Notes*
- *Extreme Hardware/Software Compatibility and Recommendation Matrices*
- *Extreme Optics Compatibility*
- *Switch Configuration with Chalet for ExtremeXOS 21.x and Later*
- *Using AVB with Extreme Switches*

Extreme Management Center Publications

- *Extreme Management Center User Guide*
- Management Center online help is available by clicking the **?** icon on all screens. The online help provides detailed explanations of how to configure and manage your network using Management Center.

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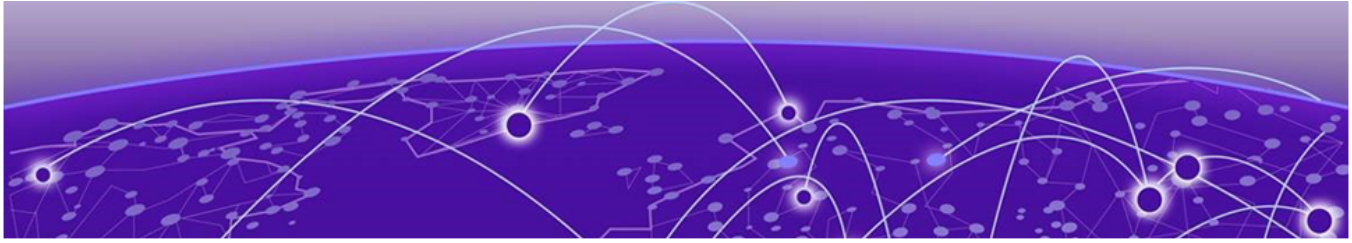


Overview

These release notes document ExtremeXOS 30.7, which adds features and resolves software deficiencies.

Security Information

The following section covers important security information for ExtremeXOS 30.7.

Linux Kernel

ExtremeXOS 30.7 uses Linux Kernel 4.14.

OpenSSL Version

ExtremeXOS 30.7 uses FIPS openssl-fips-2.0.16.

Upgrading ExtremeXOS

For instructions about upgrading ExtremeXOS software, see "Software Upgrade and Boot Options" in the *ExtremeXOS 30.7 User Guide*.

Beginning with ExtremeXOS 12.1, 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 error message `Error: Image can only be installed to the non-active partition.` appears. An ExtremeXOS modular software package (.xmod file) can still be downloaded and installed on either the active or alternate partition.

Issue Upgrading to ExtremeXOS 30.7 Using ExtremeCloud on ExtremeSwitching X435 Switches

For ExtremeSwitching X435 switches with 8-port module, when using ExtremeCloud IQ to download ExtremeXOS 30.7, the switch might become unreachable by ExtremeCloud IQ after the switch reboots and comes up running ExtremeXOS 30.7. This only occurs when using DHCP to obtain an IP address on the switch.

When upgrading from ExtremeXOS 30.5 or 30.6, or any patches of these two releases, you need to logon to the switch using SSH (SSH access is available using ExtremeCloud IQ SSH proxy feature) and perform one of the following options:

Note
ExtremeXOS 30.5 and its patch releases only support manual upgrading of images.

- DHCP—Run the command `enable dhcp vlan Default`, and then save the configuration. This assumes the VLAN is "Default". If not default VLAN, run `enable dhcp vlan <X>`.
- Static IP Address—Statically configure IP address and default gateway on the VLAN for external management access, and then save the configuration.
- Unconfigure Switch—Download ExtremeXOS 30.7 from an external site—not from the ExtremeCloud IQ URL, run the command `unconfigure switch all`, and then reboot.

EVPN: Upgrading to ExtremeXOS 30.7 and Later

When upgrading to ExtremeXOS and later, the following limitations for EVPN apply (see defect EXOS-26729 in Open Issues on page 85).

Do not configure a LAG port on more than:

- With EVPN and BGP Auto-peering enabled: 75 VLANs
- With EVPN and static BGP configuration: 120 VLANs

Alternatively, you can avoid these limits using a static port share that does not specify the LACP protocol.

Note
The LACP protocol is used if explicitly configured in the sharing commands. The preceding limitations also apply to any MLAGs using an LACP-enabled port share.

Stacking: Upgrading from ExtremeXOS 30.2 and Earlier

You cannot automatically update a switch running ExtremeXOS 30.2 or earlier to ExtremeXOS 30.3 or later due to a file system compatibility issue. If a switch has ExtremeXOS 30.2 or earlier, prior to inserting the switch into the stack topology, you need to upgrade the switch manually:

1. To download and install a new image, the active partitions (primary or secondary) of all non-master nodes must match the active partition of the master node.
   a. To determine the active partition selected on all nodes and the ExtremeXOS versions installed in each partition, use the `show slot {slot {detail} | detail }` command with the **detail** option. If the node being upgraded is running on the primary partition, then the new image is downloaded and installed on the secondary partition.
   b. If the active partition is different on some nodes, the action you take depends on what is stored in both partitions:
   If both primary and secondary partitions have the same ExtremeXOS release, you can use the following commands to cause a node to use the same active image as the rest of the stack:

   ```
   use image {primary | secondary} slot slot-number
   reboot slot slot-number
   ```

2. Download a new ExtremeXOS software release and install it on all nodes on the active topology using the command: `download [url url {vr vrname} | image [active | inactive] [[hostname | ipaddress] filename {{vr} vrname} {block-size block_size} | memorycard filename] {partition}`
3. Restart all nodes in the new release using `reboot {[time mon day year hour min sec] | cancel} {slot slot-number} {all}`

Extended Edge Switching Image Download Issue

If you are upgrading an Extended Edge Switching configuration (controlling bridge (CB) and bridge port extenders (BPEs)) from either ExtremeXOS 22.7.1 or earlier or ExtremeXOS 30.2.1 or earlier to ExtremeXOS 30.3 or later, you cannot upgrade automatically using the combined `.lst` file. Instead, you must perform a manual upgrade. ExtremeXOS 22.7.1-Patch1-3 and later do *not* have this issue.

To perform a manual upgrade:

1. Upgrade the CBs using `.xos` file.
2. Upgrade the BPEs using the `.xmod` file.

For more information about manual upgrades, see the *Manual Upgrading* section in the *Extended Edge Switching Chapter* in the *ExtremeXOS 30.7 User Guide*.

After this one-time upgrade, you can perform all subsequent ExtremeXOS upgrades automatically using the `.lst` file. For more information about automatic upgrades, see the *Automatic Upgrading* section in the *Extended Edge Switching Chapter* in the *ExtremeXOS 30.7 User Guide*.

If you attempt the upgrade with the `.lst` file, and the following error occurs:

```
# download image 192.0.2.99 onie-30.4.1.2-vpex_controlling_bridge.lst
Note: The inactive partition (secondary) will be used for installation.
Downloading tftp://192.0.2.99/onie-30.4.1.2-vpex_controlling_bridge.lst
.................
Extracting /scratch/dnld/onie-30.4.1.2.xos from tftp://192.0.2.99/onie-30.4.1.2-
vpex_controlling_bridge.lst
Error: Cannot install /scratch/dnld/onie-30.4.1.2.xos. [Errno 28] No space left on device
```

Retry the upgrade using the manual upgrade procedure described above.

If manual installation of the `.xos` or `.xmod` file fails with the same error, the `.lst` file may still be present. To remove this file, use the following command before retrying the manual upgrade procedure:

```
# run script shell.py "rm /scratch/dnld/*"
```

Open vSwitch Database Management Protocol (OVSDB) End of Support

Open vSwitch Database Management Protocol (OVSDB) is not supported starting with ExtremeXOS 30.5.

For users interested in using OVSDB, the most stable version of ExtremeXOS for OVSDB support is 16.2.

Default ExtremeXOS® Settings

Table 4 shows the default settings for ExtremeXOS starting with version 22.6, and shows any changes that have been made to these settings and in what version these changes were made.

Table 4: Default ExtremeXOS Settings

ExtremeXOS Feature	22.6 Settings	30.1 Settings	30.2 Settings	30.3 Settings	30.5 Settings	30.6 Settings	30.7 Settings
Account Lockout	After 3 consecutive login failures, account is locked for 5 minutes.						
AVB	Disabled.						
BFD Strict Session Protection	N/A.	N/A.		Disabled.			
BGP	Disabled.						
Bluetooth	N/A.	N/A.		Enabled.			
BOOTP Relay	Disabled.						
CDP	Enabled.						
Configuration auto save	Disabled.						
Clear-flow	Disabled.						
Diagnostics	Admin level privileges required to show diagnostics.						

Table 4: Default ExtremeXOS Settings (continued)

ExtremeXOS Feature	22.6 Settings	30.1 Settings	30.2 Settings	30.3 Settings	30.5 Settings	30.6 Settings	30.7 Settings
DHCP	Disabled.						Extreme IQ agent, enables DHCP on VR-Mgmt. See ExtremeCloud™ IQ Agent Support on page 29.
DNS Cache Resolver and Analytics	N/A.	N/A.		Disabled.			
IPFIX	Disabled.						
EAPS	Disabled.						
EDP	Enabled.	Enabled on management port.					
ELRP	Disabled.						
ESRP	Disabled.						
Extended Edge Switching (VPEX)	Disabled.						
Identity Management	Disabled.						
IGMP	Enabled, set to IGMPv2 compatibility mode.						
IGMP Snooping	Enabled.						
IP Route Compression	Enabled.						
ISIS	Disabled.						

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

Table 4: Default ExtremeXOS Settings (continued)

ExtremeXOS Feature	22.6 Settings	30.1 Settings	30.2 Settings	30.3 Settings	30.5 Settings	30.6 Settings	30.7 Settings
Log	Admin level privileges required to show log.						
Logging memory buffer	Generate an event when the logging memory buffer exceeds 90% of capacity.						
MAC Security	N/A	Disabled.					
MLD	Disabled.						
MLD Snooping	Disabled.						
MPLS	Disabled.						
MSRP	Disabled.						
MSTP	Enabled.						
NetLogin	All types of authentication are disabled.						
NTP	Disabled.						
ONEPolicy	Disabled.						
Policy rule model					Access list (Unless upgrading to 30.5 with existing policy rules configuration, then the default is hierarchical.	Hierarchical (Unless upgrading from 30.5 with a saved configuration set to access list.)	
OpenFlow	Disabled.				Not supported.		
OSPF	Disabled.						
OVSDB	Disabled.						

Table 4: Default ExtremeXOS Settings (continued)

ExtremeXOS Feature	22.6 Settings	30.1 Settings	30.2 Settings	30.3 Settings	30.5 Settings	30.6 Settings	30.7 Settings
Passwords	Plain text password entry not allowed.						
PIM	Disabled.						
PIM Snooping	Disabled.						
PoE Fast PoE Perpetual PoE	Enabled. N/A. N/A.			Enabled. Disabled. Disabled.			
RADIUS	Disabled for both switch management and network login.						
RIP	Disabled.						
RMON	Disabled. However, even in the disabled state, the switch responds to RMON queries and sets for alarms and events.						
sFlow	Disabled.						
SNMP server	Disabled.						
SSH	Disabled.						
Stacking	Disabled, except for X450-G2.	—	Disabled, except for X450-G2, X465.	—	—		
Stacking auto-discovery	N/A.	N/A.		Enabled.			
STP	Enabled.						
Syslog	Disabled.						
TACACS	Disabled.						

Table 4: Default ExtremeXOS Settings (continued)

ExtremeXOS Feature	22.6 Settings	30.1 Settings	30.2 Settings	30.3 Settings	30.5 Settings	30.6 Settings	30.7 Settings
Telnet	Disabled.						
VPLS	All newly created VPLS instances are enabled.						
Watchdog	Enabled.						
Web HTTP server	Disabled.						

ExtremeXOS 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: ExtremeXOS Image Types (Prefixes)

Switches	Image File Type (Prefix)
ExtremeSwitching X465, X690, X695, X590, and X870	`onie-` Example: `onie-22.2.1.2.xos` Note: These image files use the Open Network Install Environment (ONIE).
ExtremeSwitching X440-G2, X450-G2, X460-G2, X670-G2, X620,	`summitX-` Example: `summitX-22.2.1.2.xos`

ExtremeSwitching X435	`summitlite_arm-`
	Example:
	`summitlite_arm-30.5.0.102.xos`

Memory Card Keyword Deprecated

The **`memorycard`** keyword is deprecated because the physical medium is no longer an actual memory card, but instead USB devices. USB storage devices are located at `/usr/local/ext`.

CLI Commands with Deprecated **`memorycard`** Option

- `eject` **`memorycard`**—replaced with *`usb-device`*
- `save debug tracefiles` **`memorycard`**—replaced with*`directory_path`*
- `show` **`memorycard`**— replaced with **`switchmounts`**

- `download [url url {vr vrname} | image [active | inactive] [[hostname | ipaddress] filename {{vr} vrname} {block-size block_size}] {partition}`
- `download bootrom [[ipaddress | hostname] filename {{vr} vrname} {block-size block_size}] {slot slotid}`

CLI Commands with Changed Default File Locations

By default, the following commands now use the location `/usr/local/tmp` for internal memory, and `/usr/local/ext` for removable USB storage devices.

`configure debug core-dumps [ off | directory_path]`

`cp old_name new_name`

`ls file_name`

`mv old_name new_name`

`rm file_name`

`tftp [ ip-address | host-name ] { -v vr_name } { -b block_size } [ -g | -p ] [ -l local-file { -r remote-file } | -r remote-file { -l local-file } ]`

The following commands now have a *local-file* option to allow installation from the local file system (`/usr/local/`).

`install image`

`install bootrom`

New Switch Diagnostics for ExtremeSwitching X465 Series Switches

ExtremeXOS 30.7 includes an updated version of switch diagnostics for ExtremeSwitching X465 series switches that includes an enhanced PoE diagnostics test. Install the ExtremeXOS 30.7 ONIE diagnostics XMOD package to upgrade to switch diagnostics version 1.1.12.

For information about installing an XMOD file, see the *Installing a Modular Software Package* topic in the *ExtremeXOS 30.7 User Guide*.

Firmware Update Needed for ExtremeSwitching X465 Series Switches

ExtremeXOS 30.7 includes an update to the ExtremeSwitching X465 series switches FPGA firmware (version 1.2.42) to remove errors that might appear when hot plugging a fan module (see defect *EXOS-18535* in the topic Resolved Issues in ExtremeXOS 30.7 on page 102.

To upgrade, do one of the following:

- *When* installing ExtremeXOS 30.7, accept the firmware upgrade when prompted (see example below).
- *After* ExtremeXOS 30.7 is installed, run the CLI command `install firmware`.

To verify the new FPGA version is installed correctly, run the command `show version detail`:

```
X465-24XE.1 # show version detail
Switch          : 800974-01-AG 1924F-10492 Rev AG BootROM: N/A        IMG: 30.7.0.544
                  FPGA: 1.2.42 CPLD: 1.1.18 PPLD0: 1.1.8 PPLD1: 1.1.8 VPLD: 1.1.13
```

Example of Upgrading FPGA Firmware When Installing ExtremeXOS 30.7

```
X465-24XE.10 # download image 10.68.9.32 rmgr/onie-30.7.0.544.xos
Note: The inactive partition (secondary) will be used for installation.
Do you want to install image after downloading? (y - yes, n - no, <cr> - cancel) Yes

Downloading to
Switch.....................................................................................
.....................................................................................
.....................................
This image will be used only after rebooting the switch!
Installing to secondary partition!

Installing to Switch.....................................................................
Image installed successfully
Installing FPGA/PLD image(s).  Do you want to continue?
(y - yes, n - no, <cr> - cancel) Yes
Installing firmware...
.....................................................................................
.............................

Firmware image has been updated successfully.

The FPGA/PLD image(s) were installed successfully
and will be activated upon the next system reboot.

This image will be used only after rebooting the switch!
```

New and Corrected Features in ExtremeXOS 30.7

This section lists the new and corrected features supported in the 30.7 software:

ExtremeCloud IQ Agent Enhancements

For changes to Cloud IQ, see ExtremeCloud™ IQ Agent Support on page 29.

V300 Bridge Port Extenders (BPEs) Support Extended Edge Switching Rings

For ExtremeXOS 30.7, V300 bridge port extenders (BPEs) support Extended Edge Switching rings.

Extended Edge Switching rings allow two Extended Edge Switching (VPEX) cascades to be joined together to form a control plane ring. If a link breaks or a BPE otherwise leaves, the remaining BPEs reform two data plane cascades, thus keeping both control and data plane connectivity to the controlling bridge (CB) alive. This provides a redundant connection from any BPE in the ring to the CB.

Supported Platforms

Controlling bridges: ExtremeSwitching X670-G2, X465, X590, X690 series switches.

BPEs:

Table 6: V300 BPE Models

Model Numbers	Description
V300-8P-2T-W	V300 Series 8 port 10/100/1000BASE-T POE+ ports half/full duplex, 2x1000 BASE-T ports, PoE powered 802.3bt Type 4, fanless. Note: The V300-8P-2T-W model can only be directly attached to a controlling bridge. It cannot be cascaded.
V300-8P-2X	V300 Series 8 port 10/100/1000BASE-T POE+ ports half/full duplex, 2 × SFP+ ports, fanless.
V300-8T-2X	V300 Series 8 port 10/100/1000BASE-T ports half/full duplex, 2 × SFP+ ports, fanless.
V300HT-8P-2X	V300 Series 8 port 10/100/1000BASE-T POE+ ports half/full duplex, 2 × SFP+ ports, fanless, high-temperature model.
V300HT-8T-2X	V300 Series 8 port 10/100/1000BASE-T ports half/full duplex, 2 × SFP+ ports, fanless, high-temperature model.

Table 7: V400 BPE Models

Model Numbers	Description
V400-24t-10GE2	V400 Series 24 10/100/1000BASE-T, 2 1000/10GBaseX unpopulated SFP+ ports, fixed power supply and fan.
V400-24p-10GE2	V400 Series 24 10/100/1000BASE-T PoE+, 2 1000/10GBaseX unpopulated SFP+ ports, fixed power supply and fans, and optional redundant power supply.
V400-48t-10GE4	V400 Series 48 10/100/1000BASE-T, 4 1000/10GBaseX unpopulated SFP+ ports, fixed power supply and fan.
V400-48p-10GE4	V400 Series 48 10/100/1000BASE-T PoE+, 4 1000/10GBaseX unpopulated SFP+ ports, fixed power supply, fans, and optional redundant power supply.

Audio Video Bridging (AVB) Supported on ExtremeSwitching X870 and X695 Series Switches

For ExtremeXOS 30.7, Audio Video Bridging (AVB) is supported on the ExtremeSwitching X870 and X695 series switches.

AVB supports the deployment of professional quality audio and/or video (AV) over standard Ethernet while coexisting with other "legacy" (or non-AV) Ethernet traffic. This supports "Network Convergence," or using one simple standard Ethernet network for all communication needs.

AVB functionality is automatically included in the Advanced Edge License for the ExtremeSwitching X870 and X695 series switches. For more information about licenses, see the *ExtremeXOS 30.7 Feature License Requirements*.

Note
All other switches that support AVB, besides the ExtremeSwitching X870 and X695 series switches, require that you separately purchase and install the AVB Feature Pack to enable AVB functionality.

Supported Platforms

ExtremeSwitching X435, X440-G2, X450-G2, X460-G2, X465, X620, X670-G2, X695, and X870 series switches.

Joint Interoperability Test Command (JITC) Enhancements and SSH Upgrade to 8.1.p1

Several enhancements have been implemented to support Joint Interoperability Test Command (JITC) compliance.

The following table lists the enhancements for JITC compliance.

Vuln ID	JITC Requirement	New ExtremeXOS Behavior
V-55055	The network device must enforce the limit of three consecutive invalid logon attempts by a user during a 15-minute time period.	Three successive failed logons locks the account for 15 minutes.
V-55061	Upon successful logon, the network device must notify the administrator of the date and time of the last logon.	After successfully logging on, the time of the last successful logon appears.
V-55063	Upon successful logon, the network device must notify the administrator of the number of unsuccessful logon attempts since the last successful logon.	After successfully logging on, the number of unsuccessful logons appears.
V-55127	The network device must require that when a password is changed that at least eight characters are changed in the new password.	New command (see below) provided to configure the minimum number of different characters for changed passwords.
V-55135	The network device must enforce 24 hours as the minimum password lifetime.	New command (see below) provided to configure the minimum lifespan for passwords.
V-55291	The network device must notify the administrator of the number of successful logon attempts occurring during an organization-defined time period.	The number of logons since the previous reboot of the switch appears after logging on successfully.

Additionally, OpenSSH server and client is upgraded from 7.5p1 to 8.1p1. Also, a new command is provided that configures a grace timeout period. When this timeout period expires, the server disconnects if the user has not completed logon attempt.

Support for following ciphers and macs are removed, since these are not supported in openssh 8.1p1:

- Ciphers: blowfish-cbc, cast128-cbc, arcfour, arcfour256, arcfour128
- MACs: hmac-ripemd160-etm@openssh.com, hmac-ripemd160, hmac-ripemd160@openssh.com

Supported Platforms

ExtremeSwitching X435, X440-G2, X450-G2, X460-G2, X465, X590, X620, X670-G2, X690, X695, and X870 series switches.

New CLI Commands

`configure ssh2 login-grace-timeout seconds`

`configure account [all|name] password-policy min-different-characters [count]`

`configure account [all | name] password-policy min-age [num_days | none]`

Changed CLI Commands

The following show command now shows logon grace timeout period:

`show ssh2`

The following commands no longer have the unsupported ciphers and MACs as options:

`configure ssh2 enable [cipher [cipher |all] |mac [ mac |all]]`

`scp2 {cipher cipher} {mac mac} {compression [on | off]} {port portnum} {vr vr_name} user [hostname | ipaddress]:remote_file local_file`

`ssh2 {cipher cipher} {mac mac} {port portnum} {compression [on | off]} {user username} {username} [host | ipaddress] {remote command } {vr vr_name}`

The following show command now shows the minimum different password characters:

`show accounts password-policy`

Enhanced VXLAN Support for Extended Edge Switching

For Extended Edge Switching bridge port extenders (BPEs) extended ports are now supported as untagged member in VXLAN tenant VLANs.

Supported Platforms

Controlling bridges: ExtremeSwitching X670-G2, X465, X590, X690 series switches.

BPEs:

Table 8: V400 BPE Models

Model Numbers	Description
V400-24t-10GE2	V400 Series 24 10/100/1000BASE-T, 2 1000/10GBaseX unpopulated SFP+ ports, fixed power supply and fan.
V400-24p-10GE2	V400 Series 24 10/100/1000BASE-T PoE+, 2 1000/10GBaseX unpopulated SFP+ ports, fixed power supply and fans, and optional redundant power supply.
V400-48t-10GE4	V400 Series 48 10/100/1000BASE-T, 4 1000/10GBaseX unpopulated SFP+ ports, fixed power supply and fan.
V400-48p-10GE4	V400 Series 48 10/100/1000BASE-T PoE+, 4 1000/10GBaseX unpopulated SFP+ ports, fixed power supply, fans, and optional redundant power supply.

Table 9: V300 BPE Models

Model Numbers	Description
V300-8P-2T-W	V300 Series 8 port 10/100/1000BASE-T POE+ ports half/full duplex, 2x1000 BASE-T ports, PoE powered 802.3bt Type 4, fanless. Note: The V300-8P-2T-W model can only be directly attached to a controlling bridge. It cannot be cascaded.
V300-8P-2X	V300 Series 8 port 10/100/1000BASE-T POE+ ports half/full duplex, 2 × SFP+ ports, fanless.
V300-8T-2X	V300 Series 8 port 10/100/1000BASE-T ports half/full duplex, 2 × SFP+ ports, fanless.
V300HT-8P-2X	V300 Series 8 port 10/100/1000BASE-T POE+ ports half/full duplex, 2 × SFP+ ports, fanless, high-temperature model.
V300HT-8T-2X	V300 Series 8 port 10/100/1000BASE-T ports half/full duplex, 2 × SFP+ ports, fanless, high-temperature model.

New SNMP Traps

ExtremeXOS 30.7 introduces two new SNMP traps messages that are sent to registered trap receivers (along with log messages) for events that are related to service degradation for the following conditions:

- System is low on memory

```
Memory issues:
<Info:Kern.Info> : no more memory
<Info:Kern.card.Info> : no more memory
<Warn:HAL.Sys.Warning> MSM-A: Sys-Health-Check Card  8 is low on OS Memory. Total/Free
= 512888/216 Kb. AsyncQ Current/Hi/Total/Last = 1255183/1255183/83465688/1849
```

- Sync queue is rising

```
Async queue issues:
<Erro:Kern.Card.Error> Slot-3: async queue is growing (100008) type is 14860330,
customType is 42
```

This feature also introduces support for the new MIB *ETMONSERVICEABILITYTRAP*.

Supported Platforms

ExtremeSwitching X435, X440-G2, X450-G2, X460-G2, X465, X590, X620, X670-G2, X690, X695, and X870 series switches.

Show Network Login Sessions Command Enhanced

The command `show netlogin sessions` now shows Network Login (NetLogin) sessions for both policy mode and non-policy mode.

Supported Platforms

ExtremeSwitching X435, X440-G2, X450-G2, X460-G2, X465, X590, X620, X670-G2, X690, X695, X870 series switches.

Changed CLI Commands

The following command now shows NetLogin sessions for both policy mode and non-policy mode:

`show netlogin session {`**`all`** `|` **`summary`**`} {`**`mac-address`** *`mac_address`*`} {`**`ports`** *`ports`*`} {`**`agent`** `[`**`convergence-endpointdot1x`** `|` **`mac`** `|` **`web-based`**`]}`

Event Log Shows Policy Applied to Network Login Client

The event log (EMS message) in ExtremeXOS 30.7 shows the policy applied to the Network Login (NetLogin) client. If no policy is applied, the name appears as “None”.

Examples:

```
<Info:nl.ClientAuthenticated> Network Login MAC user 000000000B00 logged in MAC
00:00:00:00:0B:00 port 15 VLAN(s) "n2" policy "Extreme", authentication Locally
```

```
<Info:nl.ClientAuthenticated> Network Login MAC user 000000000B00 logged in MAC
00:00:00:00:0B:00 port 15 VLAN(s) "n2" policy "None", authentication Locally
```

Supported Platforms

ExtremeSwitching X435, X440-G2, X450-G2, X460-G2, X465, X590, X620, X670-G2, X690, X695, X870 series switches.

Ethernet Virtual Private Network (EVPN) Type 5 Routes Supported

For Ethernet Virtual Private Network (EVPN), Type 5 Routes are now supported, except for on the default VR.

Note
This feature was released as a demonstration feature in ExtremeXOS 30.6. It is now fully supported in ExtremeXOS 30.7.

ExtremeXOS 30.7 also introduces a route type specifically for these EVPN routes designated by the prefix “evn”. This origin type now appears in the output of applicable show commands (see Changed CLI Commands on page 25). For consistency with the other route types, you can also change the EVPN route priority. The default priority value for EVPN is 1698 (one less than Auto-peering routes).

Supported Platforms

ExtremeSwitching X465, X590, X690, X695 series switches.

Limitations

The following are not supported:

- Switching through a VXLAN tunnel to a remote L3 Anycast gateway.
- Default VRs.

Note
By default, when a peer is created, the following line appears in the BGP configuration:
`enable bgp neighbor neighbor_ip address-family l2vpn-evpn next-hop-unchanged`
This is harmless if L2VPN EVPN is not enabled for the peer. However, it is required if the L2VPN EVPN capability is enabled for a peer. The default for this capability and address family will be changed to enabled in a subsequent release.

New CLI Commands

`configure bgp evpn l3vni [vni_value | none] vr vr_name`

`show bgp evpn l3vni {vr vr_name}}`

`enable bgp export [static | direct] {address-family address_family} l2vpn-evpn {vr vr_name}`

`disable bgp export [static | direct] {address-family address_family} l2vpn-evpn {vr vr_name}`

Changed CLI Commands

Changes are underlined.

`show bgp routes {address-family [ipv4-unicast | ipv4-multicast |ipv6-unicast | ipv6-multicast | ipv4-vxlan | {l2vpn-evpn [inclusive-multicast | mac-ip | auto-discovery | esi | ip-prefix]}]} {detail} [ipv4-vxlan | all | as-path path-expression | community [no-advertise | no-export | no-export-subconfed | number community_number | autonomous-system-idbgp-`

community] | **network** [**any/***netMaskLen* | *networkPrefixFilter*] {**exact**}] {**vr** *vr_name*}

show bgp {**neighbor**} *remoteaddr* {**address-family** [**ipv4-unicast** | **ipv4-multicast** |**ipv6-unicast** | **ipv6-multicast** | **ipv4-vxlan** | {**l2vpn-evpn** [**inclusive-multicast** | **mac-ip** | **auto-discovery** | **esi** | **ip-prefix**]}]} [**accepted-routes** | **received-routes** | **rejected-routes** | **transmitted-routes**] {**detail**} [**all** | **as-path** *path-expression* | **community** [**no-advertise** | **no-export** | **no-export-subconfed** | **number** *community_number* | *autonomous-system-id* : *bgp-community*] | **network** [**any/***netMaskLen* | **networkPrefixFilter**] {**exact**}]

show iproute mpls origin [**bgp** | **blackhole** | **bootp** | **direct** | **ebgp** | **ibgp** | **icmp** | **isis** | **isis-level-1** | **isis-level-1-external** | **isis-level-2** | **isis-level-2-external** | **mpls** **evpn** {**signaling-protocol** [**ldp** | **rsvp-te** | **static**]} | **ospf** | **ospf-extern1** | **ospf-extern2** | **ospf-inter** | **ospf-intra** | **rip** | **static**] {**unicast**} {**vr** *vrname*}

show iproute origin [**auto-peering** | **bgp** | **blackhole** | **bootp** | **direct** | **ebgp** | **embgp** | **ibgp** | **icmp** | **imbgp** | **isis** | **isis-level-1** | **isis-level-1-external** | **isis-level-2** | **isis-level-2-external** | **mbgp** | **mpls** | **evpn** {**signaling-protocol** [**ldp** | **rsvp-te** | **static**]} | **ospf** | **ospf-extern1** | **ospf-extern2** | **ospf-inter** | **ospf-intra** | **rip** | **static**] {**unicast**} {**vr** *vrname*}

show iproute {**ipv4**} {**priority** | **vlan** *vlan_name* | **permanent** | *ip_address netmask* | **summary**} {**multicast** | **unicast**} {**vr** *vrname*}}

configure iproute {**ipv4**} **priority** [**auto-peering** | **blackhole** | **bootp** | **ebgp** |**host-mobility** | **ibgp** | **icmp** | **isis** | **isis-level-1** | **isis-level-1-external** | **isis-level-2** | **isis-level-2-external** | **mpls** | **ospf-as-external** | **ospf-extern1** | **ospf-extern2** | **ospf-inter** | **ospf-intra** | **rip** | **static** | **evpn**] *priority* {**vr** *vrname*}

unconfigure iproute {**ipv4**} **priority** [**all** | **blackhole** | **bootp** | **ebgp** | **ibgp** | **icmp** | **isis** | **isis-level-1** | **isis-level-1-external** | **isis-level-2** | **isis-level-2-external** | **mpls** | **ospf-as-external** | **ospf-extern1** | **ospf-extern2** | **ospf-inter** | **ospf-intra** | **rip** | **static** | **evpn**] {**vr** *vrname*}

IP and MAC Anycast

This feature enables you to configure the anycast gateway MAC to be used by VLANs that enable IP anycast. You can specify the same IP address and MAC address on all edge technology devices, which allows seamless IP mobility in the network for edge devices.

Note

This feature was released as a demonstration feature in ExtremeXOS 30.6. It is now fully supported in ExtremeXOS 30.7.

Supported Platforms

ExtremeSwitching X450-G2, X460-G2, X670-G2, X435, X440-G2, X465, X590, X620, X690, X695, X870 series switches.

Limitations

Switching through a VXLAN tunnel to a remote L3 anycast gateway is not supported.

New CLI Commands

`configure **ip anycast mac** [**none** | *mac*]`

`enable **ip anycast** {**vlan**} *vlan_name*`

`disable **ip anycast** {**vlan**} *vlan_name*`

`configure **bootprelay dhcp-agent source-vlan** {*vlan_name*} {**vr** *vrid*}`

`unconfigure **bootprelay dhcp-agent source-vlan** {**vr** *vrid*}`

Changed CLI Command

Changes are underlined.

`configure [ {**vlan**} *vlan_name* | **vlan** *vlan_id*]**add secondary-ipaddress anycast** [*ip_address* {*netmask*} | *ipNetmask*]`

For the following command, the **all** now has the capability to delete anycast IP addresses:

`configure [ {**vlan**} *vlan_name* | **vlan** *vlan_id*] **delete secondary-ipaddress** [*ip_address* | **all**]`

The following show commands are changed to display IP anycast information:

`show vlan`

`show ipconfig {**ipv4**} {**vlan** *vlan_name*}`

`show ipconfig ipv6 {**vlan** *vlan_name* | **tunnel** *tunnel_name*}`

`show bootprelay configuration {ipv4 | ipv6} {{**vlan** *vlan_name* } | {**vr** *vr_name*}}`

Insight for Guest Virtual Machines (VMs) Enhancements

In addition to the standard abilities to start and stop a guest virtual machine (VM), you now have the ability to suspend, resume, and to save the state of a VM.

You also now have the ability to configure the VM's disk bus or controller. The default bus type is VirtIO, but some operating systems do not support this, and as a consequence, the VM will fail to boot. In this case, you can configure the bus type to IDE or SCSI.

Supported Platforms

ExtremeSwitching X465-24MU, X465-2MU-24W, X465i-48W, and X465-24XE switches, X695 series switches.

New CLI Commands

```
save vm vm_name state

configure vm vm_name disk bus-type bus_type

suspend vm vm_name

resume vm vm_name
```

Changed CLI Commands

The following show command now displays the VM disk bus or controller type:

```
show vm {vm_name | detail}
```

Ability to Disable Online Certificate Status Protocol (OCSP) for Transport Layer Security (TLS) Connections to Remote Syslog Servers

To comply with *RFC 6960* (X.509 Internet Public Key Infrastructure Online Certificate Status Protocol – OCSP), ExtremeXOS 30.7 provides the ability to disable Online Certificate Status Protocol (OCSP) check for Transport Layer Security (TLS) connections to remote Syslog servers.

Note
Be sure you understand the ramifications of turning off OCSP if you chose to do so.

Supported Platforms

ExtremeSwitching X435, X440-G2, X450-G2, X460-G2, X465, X590, X620, X670-G2, X690, X695, and X870 series switches.

New CLI Commands

```
configure syslog tls ocsp [on | off]
```

Changed CLI Commands

The following show commands now displays the OCSP check status.

```
show log configuration
```

Ability to Enable or Disable Digital Diagnostic Monitoring Interface (DDMI)

ExtremeXOS 30.7 allows you to enable or disable Digital Diagnostic Monitoring Interface (DDMI). DDMI provides critical system information about the installed optical modules.

Supported Platforms

ExtremeSwitching X435, X440-G2, X450-G2, X460-G2, X465, X590, X620, X670-G2, X690, X695, and X870 series switches.

New CLI Commands

`configure ports [port_list | all] ddmi [on | off]`

RADIUS Service Type Attribute Change

In earlier versions of ExtremeXOS, RADIUS access requests sent "Framed-User" as the value for the attribute "Service-Type" for all authentication types.

For ExtremeXOS 30.7, in conformance with *RFC 2865*, RADIUS access requests now send the following values for the attribute "Service-Type" for the following authentication methods:

- Web-Auth—“Login"
- MAC-Auth—“Call Check”
- Dot1x—“Framed”

Supported Platforms

ExtremeSwitching X435, X440-G2, X450-G2, X460-G2, X465, X590, X620, X670-G2, X690, X695, and X870 series switches.

ExtremeCloud™ IQ Agent Support

ExtremeXOS 30.7 supports ExtremeCloud IQ.

This release supports device discovery, basic monitoring, and introduces support for visibility into homogenous stacking. ExtremeXOS 30.7 also introduces the ability to configure an optional user-defined virtual router (VR) and address of the server for ExtremeCloud IQ agent to connect to. These values are used instead of any auto-detected values.

To configure a server VR or address, use the following command:

`configure iqagent server [vr [vr-name | none] | ipaddress [fqdn | ip_address| none]]`

To view information about IQ Agent, use the following command:

`show iqagent discovery`

ExtremeXOS 30.7 also adds support for the following switch models: X450-G2-48P-GE4, X460-G2-16MP-32P-10GE4, and X460-G2-24P-24HP-10GE.

Note
By default IQ Agent enables DHCP on the Management VR. To avoid this default behavior, apply an IP address on VR-Mgmt, and then disable DHCP.

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

Table 10: Supported Platforms

Switch Series	Switch Models
ExtremeSwitching X435	X435-8T-4S X435-8P-4S X435-8P-2T-W X435-24T-4S X435-24P-4S
ExtremeSwitching X440-G2	X440-G2-24P-10GE4 X440-G2-48P-10GE4 X440-G2-12T-10GE4 X440-G2-12P-10GE4 X440-G2-24T-10GE4 X440-G2-48T-10GE4
ExtremeSwitching X450-G2	X450-G2-24P-10GE X450-G2-48P-10GE X450-G2-24P-GE4 X450-G2-48P-GE4
ExtremeSwitching X460-G2	X460-G2-24P-10GE4 X460-G2-48P-10GE4 X460-G2-16MP-32P-10GE4 X460-G2-24P-48HP-10GE4
ExtremeSwitching X465	X465-48P X465-24MU-24W X465-24W X465-48W X465-24MU

Extreme Hardware/Software Compatibility and Recommendation Matrices

The *Extreme Hardware/Software Compatibility and Recommendation Matrices* provide information about the minimum version of ExtremeXOS software required to support switches.

For information about which optics are supported on which hardware platforms, and the minimum software version required, see https://optics.extremenetworks.com/EXOS/.

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

Compatibility with Extreme Management Center (Formerly NetSight)

ExtremeXOS 30.7 is compatible with specific versions of Extreme Management Center. Navigate to the following site and select your version of XMC for more information: http://emc.extremenetworks.com/content/common/releasenotes/extended_firmware_support.htm.

Supported MIBs

The Extreme Networks management information bases (MIBs) are located at www.extremenetworks.com/support/policies/mibs/.

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

For detailed information on which MIBs and SNMP traps are supported, see the *Extreme Networks Proprietary MIBs* and *MIB Support Details* sections in the *ExtremeXOS 30.7 User Guide*.

Tested Third-Party Products

The following third-party products have been tested for ExtremeXOS 30.7.2.

Tested RADIUS Servers

The following RADIUS servers are fully tested:

- Microsoft—Internet Authentication Server
- Meetinghouse
- FreeRADIUS

Tested Third-Party Clients

The following third-party clients are fully tested:

- Windows 7
- Windows Vista
- Linux (IPv4 and IPv6)
- Windows XP (IPv4)

Extreme Switch Security Assessment

DoS Attack Assessment

Tools used to assess DoS attack vulnerability:

- Network Mapper (NMAP)

ICMP Attack Assessment

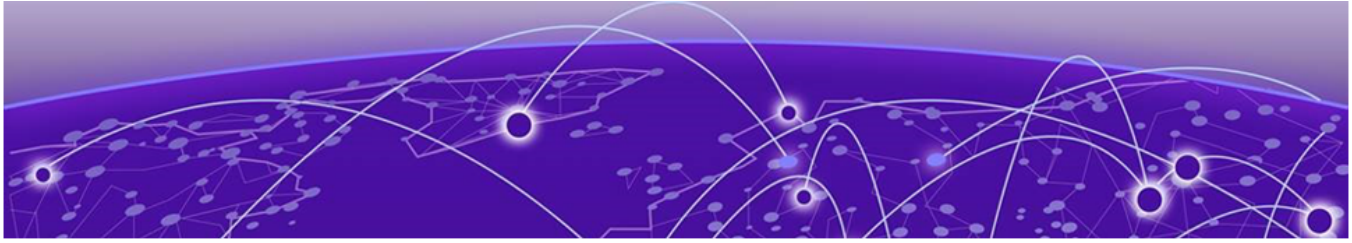
Tools used to assess ICMP attack vulnerability:

- SSPing
- Twinge
- Nuke
- WinFreeze

Port Scan Assessment

Tools used to assess port scan assessment:

- Nessus



Limits

This chapter summarizes the supported limits in ExtremeXOS 30.7.

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

- Supported Limits for Value Edge License
- Supported Limits for Edge License
- Supported Limits for Advanced Edge License
- Supported Limits for Core License

For more information about licenses, see *ExtremeXOS 30.7 Feature License Requirements*.

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 (for example, Extended Edge Switching X670-G2 series switches) in use. For applicable limits, see the following tables for the controlling bridge you are using.

Supported Limits for Value Edge License

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

Table 11: 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 0 egress
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
CFM—maximum number of CFM down end points.	ExtremeSwitching X435	32

Table 11: Supported Limits for Value Edge License (continued)

Metric	Product	Limit
CFM—maximum number of CFM remote end points per up/down end point.	ExtremeSwitching X435	2,000
CFM—maximum number of dot1ag ports.	ExtremeSwitching X435	128
CFM—maximum number of CFM segments.	ExtremeSwitching X435	1,000
CFM—maximum number of MIPs.	ExtremeSwitching X435	256
DHCPv6 Prefix Delegation Snooping—Maximum number of DHCPv6 prefix delegation snooped entries.	ExtremeSwitching X435	30 (with static routes)
DHCP snooping entries—maximum number of DHCP snooping entries.	ExtremeSwitching X435	30
Dynamic ACLs—maximum number of ACLs processed per second. Note: Limits are load-dependent.	ExtremeSwitching X435 with 50 DACLs with 500 DACLs	10 5
EAPS domains—maximum number of EAPS domains.	ExtremeSwitching X435	4
EAPSv1 protected VLANs—maximum number of protected VLANs.	ExtremeSwitching X435	1,000
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	9,000 pps
FDB (unicast blackhole entries)—maximum number of unicast blackhole FDB entries.	ExtremeSwitching X435	16,019
FDB (multicast blackhole entries)—maximum number of multicast blackhole FDB entries.	ExtremeSwitching X435	16,384
FDB (maximum L2 entries)—maximum number of MAC addresses.	ExtremeSwitching X435	16,384 [g]

Table 11: Supported Limits for Value Edge License (continued)

Metric	Product	Limit
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
Identity management—recommended number of identities per switch. Note: Number of identities per switch is for a default identity management database size (512 Kbytes) across all platforms.	ExtremeSwitching X435	100
Identity management—recommended number of ACL entries per identity. Note: Number of ACLs per identity, based on system ACL limitation.	ExtremeSwitching X435	20

Table 11: Supported Limits for Value Edge License (continued)

Metric	Product	Limit
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
IP ARP entries in software—maximum number of IP ARP entries in software. **Note:** Might be limited by hardware capacity of FDB (maximum L2 entries).	ExtremeSwitching X435	20,424
IPv4 ARP entries in hardware with minimum LPM routes—maximum recommended number of IPv4 ARP entries in hardware, with minimum LPM routes present. Assumes number of IP route reserved entries is 100 or less.	ExtremeSwitching X435	509 [h]
IPv4 ARP entries in hardware with maximum LPM routes—maximum recommended number of IPv4 ARP entries in hardware, with maximum LPM routes present. Assumes number of IP route reserved entries is “maximum.”	ExtremeSwitching X435	500 [h]

Table 11: Supported Limits for Value 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 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
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

Table 11: Supported Limits for Value Edge License (continued)

Metric	Product	Limit
Layer-2 IPMC forwarding caches—(IGMP/MLD/PIM snooping) in mac-vlan mode. Note: • The internal lookup table configuration used is "l2-and-l3". • IPv6 and IPv4 L2 IPMC scaling is the same for this mode. • Layer-2 IPMC forwarding cache limits—(IGMP/MLD/PIM snooping) in mixed-mode are the same.	ExtremeSwitching X435	5,000
Layer-3 IPv4 Multicast—maximum number of <S,G,V> entries installed in the hardware (IP multicast compression enabled). Note: • Limit value is the same for MVR senders, PIM Snooping entries. PIM SSM cache, IGMP senders, PIM cache. • The internal lookup table configuration used is "more l3-and-ipmc". • Assumes source-group-vlan mode as look up key. • Layer 3 IPMC cache limit in mixed mode also has the same value.	ExtremeSwitching X435	1,500
Layer-3 IPv6 Multicast—maximum number of <S,G,V> entries installed in the hardware (IP multicast compression enabled). Note: • Limit value is the same for MLD sender per switch, PIM IPv6 cache. • The internal lookup table configuration used is "more l3-and-ipmc". • Assumes source-group-vlan mode as lookup key.	ExtremeSwitching X435	700

Table 11: Supported Limits for Value Edge License (continued)

Metric	Product	Limit
Load sharing—maximum number of load sharing groups. Note: The actual number of load-sharing groups that can be configured is limited by the number of physical ports present in the switch or SummitStack.	ExtremeSwitching X435	8
Load sharing—maximum number of ports per load-sharing group.	ExtremeSwitching X435 (standalone only)	8
Logged messages—maximum number of messages logged locally on the system.	ExtremeSwitching X435	20,000
MAC-based security—maximum number of MAC-based security policies.	ExtremeSwitching X435	1,024
MAC Locking—Maximum number of MAC locking stations that can be learned on a port.	ExtremeSwitching X435	64 (static MAC locking stations) 600 (first arrival MAC locking stations)
Meters—maximum number of meters.	ExtremeSwitching X435	512
Maximum mirroring instances.	ExtremeSwitching X435	1 (egress)
Mirroring (filters)—maximum number of mirroring filters. Note: This is the number of filters across all the active mirroring instances.	ExtremeSwitching X435	128
Mirroring, one-to-many (filters)—maximum number of one-to-many mirroring filters. Note: This is the number of filters across all the active mirroring instances.	ExtremeSwitching X435	128
Mirroring, one-to-many (monitor port)—maximum number of one-to-many monitor ports.	ExtremeSwitching X435	1

Table 11: Supported Limits for Value Edge License (continued)

Metric	Product	Limit
Multicast listener discovery (MLD) snooping per-VLAN filters—maximum number of VLANs supported in per-VLAN MLD snooping mode.	ExtremeSwitching X435	63
Multicast listener discovery (MLD)v1 subscribers—maximum number of MLDv1 subscribers per port.[n]	ExtremeSwitching X435	2,500
Multicast listener discovery (MLD)v1 subscribers—maximum number of MLDv1 subscribers per switch.[n]	ExtremeSwitching X435	12,500
Multicast listener discovery (MLD)v2 subscribers—maximum number of MLDv2 subscribers per port.[n]	ExtremeSwitching X435	2,000
Multicast listener discovery (MLD)v2 subscribers—maximum number of MLDv2 subscribers per switch.[n]	ExtremeSwitching X435	10,000
Multicast listener discovery (MLD)v2 maximum source per group—maximum number of source addresses per group.	ExtremeSwitching X435	200
Network Login—maximum number of clients being authenticated on MAC-based VLAN enabled ports.	ExtremeSwitching X435	1,024
Network Login—maximum number of dynamic VLANs.	ExtremeSwitching X435	1,024
Network Login VLAN VSAs—maximum number of VLANs a client can be authenticated on at any given time.	ExtremeSwitching X435	10
Network Service Identifiers (NSI)/ VLAN mappings—maximum number of VLANs to NSI mappings.	ExtremeSwitching X435	94
ONEPolicy Roles/Profiles—maximum number of policy roles/ profiles.	ExtremeSwitching X435	63
ONEPolicy Rules per Role/Profile—maximum number of rules per role/policy.	ExtremeSwitching X435	IPv4 Rules: 128 L2 Rules: 56

Table 11: Supported Limits for Value Edge License (continued)

Metric	Product	Limit
ONEPolicy Authenticated Users per Switch—maximum number of authenticated users per switch with TCI-Overwrite disabled. Note: The maximum values assume 75% utilization of VLAN-XLATE hash table.	ExtremeSwitching X435	192
ONEPolicy Authenticated Users per Port per Switch— maximum number of authenticated users per port per switch with TCI overwrite disabled. Note: The maximum values assume 75% utilization of VLAN-XLATE hash table.	ExtremeSwitching X435	187
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 11: 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. 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. 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, ExtremeSwitching X670-G2 supports 256 PVST domains (maximum), and 4,096 STP ports (maximum), so the maximum number of active ports per PVST domain would be 16 ports (4,096 ÷ 256).	ExtremeSwitching X435	128
Spanning Tree—maximum number of multiple spanning tree instances (MSTI) domains.	ExtremeSwitching X435	16
Spanning Tree—maximum number of VLANs per MSTI. Note: Maximum number of 10 active ports per VLAN when all 100 VLANs are in one MSTI.	ExtremeSwitching X435	100
Spanning Tree—maximum number of VLANs on all MSTP instances.	ExtremeSwitching X435	256

Table 11: Supported Limits for Value Edge License (continued)

Metric	Product	Limit
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. Note: * Subject to other system limitations.	ExtremeSwitching X435	16 (local-only VRFs)
VLAN aggregation—maximum number of port-VLAN combinations on any one superVLAN and all of its subVLANs.	ExtremeSwitching X435	1,000
VLANs—includes all VLANs.	ExtremeSwitching X435	4,094
VLANs (Layer 2)—maximum number of Layer 2 VLANs.	ExtremeSwitching X435	4,094

Table 11: Supported Limits for Value Edge License (continued)

Metric	Product	Limit
VLANs (Layer 3)—maximum number of VLANs performing IPv4 and/or IPv6 routing. Excludes sub-VLANs.	ExtremeSwitching X435	IPv4: 30 IPv6: 15
VLANs (maximum active port-based)—maximum active ports per VLAN when 1,000 VLANs are configured with default license.	ExtremeSwitching X435	28
VLAN Port Interfaces (VPIF)—maximum number of VLAN port interfaces.	ExtremeSwitching X435	38,400
VLANs (maximum active protocol-sensitive filters)—number of simultaneously active protocol filters in the switch.	ExtremeSwitching X435	16
VLAN translation—maximum number of translation VLANs. Assumes a minimum of one port per translation and member VLAN.	ExtremeSwitching X435	15
VLAN translation—maximum number of translation VLAN pairs with an IP address on the translation VLAN. Note: This limit is dependent on the maximum number of translation VLAN pairs in an L2-only environment if the configuration includes tagged and translated ports.	ExtremeSwitching X435	15
VLAN translation—maximum number of translation VLAN pairs in an L2-only environment.	ExtremeSwitching X435	15
XML requests—maximum number of XML requests per second. Note: Limits are dependent on load and type of XML request. These values are dynamic ACL data requests.	ExtremeSwitching X435	10 with 100 DACLs

Supported Limits for Edge License

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

Table 12: 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 256 egress
	ExtremeSwitching X670-G2, X450-G2, X460-G2	1,024 ingress 512 egress
	ExtremeSwitching X870, X690, X590, X465	2,048 ingress 512 egress
	ExtremeSwitching X695	6,000 ingress 2,000 egress
Access lists (policies)—suggested maximum number of lines in a single policy file.	All platforms, except X435	300,000
Access lists (policies)—maximum number of rules in a single policy file.[a]	ExtremeSwitching X460-G2, X450-G2, X670-G2	4,096 ingress 1,024 egress
	ExtremeSwitching X620, X440-G2	2,048 ingress 512 egress
	ExtremeSwitching X870	3,072 ingress 1,024 egress
	ExtremeSwitching X690, X590, X465, X695	8,192 ingress 1,024 egress
Access lists (policies)—maximum number of rules in a single policy file in first stage (VFP).	ExtremeSwitching X450-G2, X460-G2	2,048 ingress only
	ExtremeSwitching X670-G2, X870, X690, X695	1,024 ingress only
	ExtremeSwitching X620, X440-G2	512 ingress only
	ExtremeSwitching X590, X465	2,048 ingress only
Access lists (slices)—number of ACL slices.	ExtremeSwitching X460-G2, X450-G2	16 ingress 4 egress
	ExtremeSwitching X670-G2, X690, X590, X465, X695	12 ingress 4 egress
	ExtremeSwitching X440-G2, X620	8 ingress 4 egress
	ExtremeSwitching X870	4 ingress 4 egress
Access lists (slices)—number of ACL slices in first stage (VFP).	ExtremeSwitching X450-G2, X460-G2, X670-G2, X465, X620, X440-G2, X870, X690, X590, X695	4 ingress only

Table 12: Supported Limits for Edge License (continued)

Metric	Product	Limit
ACL Per Port Meters—number of meters supported per port.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695	16
ACL port ranges.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695	32
Meters Packets-Per-Second Capable.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695	Yes
AVB (audio video bridging)—maximum number of active streams.	ExtremeSwitching X450-G2, X460-G2, X620, X440-G2	1,024
	ExtremeSwitching X465, X670-G2, X695, X870	4,096
	ExtremeSwitching X590, X690	N/A
BFD sessions (Software Mode)—maximum number of BFD sessions.	ExtremeSwitching X460-G2, X670-G2, X450-G2, X440-G2, X620, X870, X690, X590, X465, X695 (default timers—1 sec)	512
	ExtremeSwitching X460-G2, X670-G2, X450-G2, X440-G2, X620, X870, X690, X590, X465, X695 (minimal timers—100 msec)	10 [C]
BFD IPv4 sessions (Hardware Assisted)—maximum number of IPv4 BFD sessions.	ExtremeSwitching X460-G2, X870, X690, X590, X465, X695	900 (PTP not enabled) 425 (PTP enabled) 256 (with 3 ms transmit interval)
BFD IPv6 sessions (Hardware Assisted)—maximum number of IPv6 BFD sessions.	ExtremeSwitching X460-G2, X870, X690, X590, X465, X695	425 (PTP not enabled)
BOOTP/DHCP relay—maximum number of BOOTP or DHCP servers per virtual router.	ExtremeSwitching X460-G2, X670-G2, X450-G2, X440-G2 , X465, X620, X870, X690, X590, X695	8
BOOTP/DHCP relay—maximum number of BOOTP or DHCP servers per VLAN.	ExtremeSwitching X460-G2, X670-G2, X450-G2, X440-G2, X465, X620, X870, X690, X590, X695	8
BOOTP/DHCP relay—maximum number of DHCPv4/v6 relay agents	ExtremeSwitching X460-G2, X670-G2, X450-G2, X440-G2 , X465, X620, X870, X690, X590, X695	4,000
Connectivity fault management (CFM)—maximum number or CFM domains. Note: With Advanced Edge license or higher.	ExtremeSwitching X460-G2, X670-G2, X450-G2, X440-G2, X620, X870, X690, X590, X465, X695	8

Table 12: Supported Limits for Edge License (continued)

Metric	Product	Limit
CFM—maximum number of CFM associations. Note: With Advanced Edge license or higher.	ExtremeSwitching X460-G2, X670-G2, X450-G2, X440-G2, X620, X870, X690, X590, X465, X695	256
CFM—maximum number of CFM up end points. Note: With Advanced Edge license or higher.	ExtremeSwitching X460-G2, X670-G2, X450-G2, X440-G2, X620, X870, X690, X590, X465, X695	32
CFM—maximum number of CFM down end points. Note: With Advanced Edge license or higher.	ExtremeSwitching X670-G2, X450-G2, X440-G2, X620, X870, X690, X590, X465, X695 ExtremeSwitching X460-G2	32 256 (non-load shared ports) 32 (load shared ports)
CFM—maximum number of CFM remote end points per up/down end point. Note: With Advanced Edge license or higher.	ExtremeSwitching X460-G2, X670-G2, X450-G2, X440-G2, X620, X870, X690, X590, X465, X695	2,000
CFM—maximum number of dot1ag ports. Note: With Advanced Edge license or higher.	ExtremeSwitching X460-G2, X670-G2, X450-G2, X440-G2, X620, X870, X690, X590, X465, X695	128
CFM—maximum number of CFM segments. Note: With Advanced Edge license or higher.	ExtremeSwitching X460-G2, X670-G2, X450-G2, X440-G2, X620, X870, X690, X590, X465, X695	1,000
CFM—maximum number of MIPs. Note: With Advanced Edge license or higher.	ExtremeSwitching X460-G2, X670-G2, X450-G2, X620, X440-G2, X870, X690, X590, 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, X670-G2, X450-G2 ExtremeSwitching X440-G2, X620 ExtremeSwitching X870 ExtremeSwitching X690, X590, X465, X695	4,094 1,024 3,072 8,192

Table 12: Supported Limits for Edge License (continued)

Metric	Product	Limit
Data Center Bridging eXchange (DCBX) protocol Type Length Value (TLVs)—maximum number of DCBX application TLVs.	ExtremeSwitching X460-G2, X670-G2, X450-G2, X440-G2, X620, X870, X690, X590, X465, X695	8
DHCPv6 Prefix Delegation Snooping—Maximum number of DHCPv6 prefix delegation snooped entries.	ExtremeSwitching X460-G2, X670-G2, X450-G2, X620, X440-G2, X870, X690, X590, X465, X695	256 (with underlying protocol RIPng) 128 (with underlying protocol OSPFv3) 1,024 (with static routes)
DHCP snooping entries—maximum number of DHCP snooping entries.	ExtremeSwitching X460-G2, X670-G2, X450-G2, X620, X440-G2, X870, X690, X590, X465, X695	2,048
Dynamic ACLs—maximum number of ACLs processed per second. Note: Limits are load-dependent.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695 with 50 DACLs with 500 DACLs	 10 5
EAPS domains—maximum number of EAPS domains. Note: An EAPS ring that is being spatially reused cannot have more than four configured EAPS domains. Note: You can increase the number of domains by upgrading to the Advanced Edge license.	ExtremeSwitching X670-G2, X450-G2, X460-G2, X440-G2, X620, X870, X690, X590, X465, X695	4
EAPSv1 protected VLANs—maximum number of protected VLANs.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2 ExtremeSwitching X870, X690, X590, X465, X695	1,000 2,000
ERPS domains—maximum number of ERPS domains with or without CFM configured. Note: You can increase the number of domains by upgrading to the Advanced Edge license.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695	4
ERPSv1 protected VLANs—maximum number of protected VLANs.	ExtremeSwitching X870, X690, X590, X465, X695 ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2	2,000 1,000

Table 12: Supported Limits for Edge License (continued)

Metric	Product	Limit
ERPSv2 protected VLANs—maximum number of protected VLANs.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X870, X690 , X590, X465, X695	2,000
	ExtremeSwitchingX620, X440-G2	500
ELSM (vlan-ports)—maximum number of VLAN ports.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X870, X690, X590 , X465, X695	5,000
	ExtremeSwitching X440-G2	4,000
Extended Edge Switching maximum BPEs—maximum number of attached bridge port extenders (BPEs).	ExtremeSwitching X465, X590, X670-G2, X690	48
Extended Edge Switching maximum cascade ports—maximum number of upstream ports on bridge port extenders (BPEs).	ExtremeSwitching X465, X590, X670-G2, X690	2 on V400-24 and V300 models 4 on V400-48 models
Extended Edge Switching maximum tiers—maximum number of cascade levels (tiers) of bridge port extenders (BPEs).	ExtremeSwitching X465, X590, X670-G2, X690	4 (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, X670-G2, X690	8
Extended Edge Switching VLAN+ port memberships—maximum number of VLAN+ (extended) port memberships.	ExtremeSwitching X465, X590, X670-G2, X690	12,000 in hash mode (default) 131,000 in port-group mode
Forwarding rate—maximum L3 software forwarding rate.	ExtremeSwitching X690, X590, X465, X695	30,000 pps
	ExtremeSwitching X870	32,000 pps
	ExtremeSwitching X450-G2	16,000 pps
	ExtremeSwitching X460-G2	17,000 pps
	ExtremeSwitching X620	10,000 pps
	ExtremeSwitching X670-G2	15,000 pps
	ExtremeSwitching X440-G2	9,000 pps

Table 12: Supported Limits for Edge License (continued)

Metric	Product	Limit
FDB (unicast blackhole entries)—maximum number of unicast blackhole FDB entries.	ExtremeSwitching X460-G2	49,152[f]
	ExtremeSwitching X670-G2	294,912[f]
	ExtremeSwitching X450-G2	34,816[f]
	ExtremeSwitching X620, X440-G2	16,384[f]
	ExtremeSwitching X870	139,264[f]
	ExtremeSwitching X690, X590, X465	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 X670-G2, X870, X690, X590, X465, X695	4,096
FDB (maximum L2 entries)—maximum number of MAC addresses.	ExtremeSwitching X460-G2	98,300[g]
	ExtremeSwitching X670-G2	294,912[g]
	ExtremeSwitching X450-G2	68,000[g]
	ExtremeSwitching X620, X440-G2	16,384
	ExtremeSwitching X870	139,264[g]
	ExtremeSwitching X690, X590, X465, X695	278,528[g]
	ExtremeSwitching X695	294,912 [g]
FDB (maximum L2 entries)—maximum number of multicast FDB entries.	ExtremeSwitching X670-G2, X870, X690, X590, X465, 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, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695	512
Identity management—maximum number of Whitelist entries.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695	512
Identity management—maximum number of roles that can be created.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695	64
Identity management—maximum role hierarchy depth allowed.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695	5
Identity management—maximum number of attribute value pairs in a role match criteria.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695	16
Identity management—maximum number of child roles for a role.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695	8
Identity management—maximum number of policies/dynamic ACLs that can be configured per role.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695	8

Table 12: Supported Limits for Edge License (continued)

Metric	Product	Limit
Identity management—maximum number of LDAP servers that can be configured.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695	8
Identity management—maximum number of Kerberos servers that can be configured.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695	20
Identity management—maximum database memory size.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695	512
Identity management—recommended number of identities per switch. Note: Number of identities per switch is for a default identity management database size (512 Kbytes) across all platforms.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695	100
Identity management—recommended number of ACL entries per identity. Note: Number of ACLs per identity, based on system ACL limitation.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695	20
Identity management—maximum number of dynamic ACL entries configured as an individual dynamic rule, or as an ACL entry in a policy file.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695	500
IGMP snooping per VLAN filters—maximum number of VLANs supported in per-VLAN IGMP snooping mode.	ExtremeSwitching X460-G2, X870 ExtremeSwitching X450-G2 ExtremeSwitching X670-G2 , X695 ExtremeSwitching X620, X440-G2 ExtremeSwitching X690, X590, X465	1,500 2,048 2,000 1,000 4,000
IGMPv1/v2 SSM-map entries—maximum number of IGMPv1/v2 SSM mapping entries.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695	500
IGMPv1/v2 SSM-map entries—maximum number of sources per group in IGMPv1/v2 SSM mapping entries.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695	50
IGMPv2 subscriber—maximum number of IGMPv2 subscribers per port. [n]	ExtremeSwitching X670-G2, X460-G2, X450-G2 ExtremeSwitching X440-G2, X620 ExtremeSwitching X870, X690, X590, X465, X695	4,000 3,500 4,000

Table 12: Supported Limits for Edge License (continued)

Metric	Product	Limit
IGMPv2 subscriber—maximum number of IGMPv2 subscribers per switch.[n]	ExtremeSwitching X670-G2	30,000
	ExtremeSwitching X460-G2, X450-G2	20,000
	ExtremeSwitching X620, X440-G2	17,500
	ExtremeSwitching X465, X870, X690, X590, X695	45,000
IGMPv3 maximum source per group—maximum number of source addresses per group.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X770, X620, X440-G2, X870, X690, X590, X465, X695	250
IGMPv3 subscriber—maximum number of IGMPv3 subscribers per port.[n]	ExtremeSwitching X670-G2, X460-G2, X450-G2	4,000
	ExtremeSwitching X440-G2, X620	3,500
	ExtremeSwitching X870, X690, X590, X465, X695	4,000
IGMPv3 subscriber—maximum number of IGMPv3 subscribers per switch.[n]	ExtremeSwitching X460-G2, X450-G2	20,000
	ExtremeSwitching X670-G2	30,000
	ExtremeSwitching X620, X440-G2	17,500
	ExtremeSwitching X870, X690, X590, X465, X695	45,000
IP ARP entries in software—maximum number of IP ARP entries in software. Note: Might be limited by hardware capacity of FDB (maximum L2 entries).	ExtremeSwitching X670-G2	131,072 (up to)[h]
	ExtremeSwitching X460-G2	57,344 (up to)[h]
	ExtremeSwitching X450-G2	47,000 (up to)[h]
	ExtremeSwitching X440-G2, X620	20,480
	ExtremeSwitching X870	94,206 (up to)[h]
	ExtremeSwitching X690, X590, X465	157,694 (up to)[h]
	ExtremeSwitching X695	184,318 (up to)[h]

Table 12: Supported Limits for Edge License (continued)

Metric	Product	Limit
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 X870	74,000 (up to)[h]
	ExtremeSwitching X460-G2	50,000 (up to)[h]
	ExtremeSwitching X670-G2	108,000 (up to)[h]
	ExtremeSwitching X450-G2	39,000 (up to)[h]
	ExtremeSwitching X620	1,500
	ExtremeSwitching X440-G2	1,000
	ExtremeSwitching X690, X590, X465	119,000 (up to)[h]
	ExtremeSwitching X695	46,000 (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 X870	64,000 (up to)[h]
	ExtremeSwitching X460-G2	43,000 (up to)[h]
	ExtremeSwitching X670-G2	98,000 (up to)[h]
	ExtremeSwitching X450-G2	29,000 (up to)[h]
	ExtremeSwitching X620	1,500
	ExtremeSwitching X440-G2	1,000
	ExtremeSwitching X690, X590, X465	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 2,048 egress
	ExtremeSwitching X450-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695	N/A

Table 12: 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 X870	120,000 (up to)[h]
	ExtremeSwitching X460-G2	73,000[h]
	ExtremeSwitching X670-G2	176,000 (up to)[h]
	ExtremeSwitching X450-G2	61,000 (up to)[h]
	ExtremeSwitching X440-G2, X620	3,500
	ExtremeSwitching X690, X590, X465	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 X670-G2, X690, X870, X590, X465, 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 X670-G2, X690, X870, X590, X465, X695	131,000[q]
	ExtremeSwitching X620, X440-G2	480
IPv6 6in4 tunnel—maximum number of IPv6 6in4 tunnels.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X870, X690, X590, X465, X695	255
	ExtremeSwitching X440-G2, X620	N/A
IPv6 6to4 tunnel—maximum number of IPv6 6to4 tunnels.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X870, X690, X590, X465, 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, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695	255
IPv6 addresses on a switch—maximum number of IPv6 addresses on a switch.	ExtremeSwitching X670-G2, X460-G2, X450-G2, X870, X690, X590, X465, X695	2,048
	ExtremeSwitching X620, X440-G2	510

Table 12: Supported Limits for Edge License (continued)

Metric	Product	Limit
IPv6 host entries in hardware—maximum number of IPv6 neighbor entries in hardware.	ExtremeSwitching X670-G2	36,750[h]
	ExtremeSwitching X460-G2	22,000[h]
	ExtremeSwitching X450-G2	12,000[h]
	ExtremeSwitching X440-G2	1,000
	ExtremeSwitching X620	1,500
	ExtremeSwitching X690, X590, X465	24,500[h]
	ExtremeSwitching X870	22,000[h]
	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 X670-G2, X690, X870, X590, X465, X695	65,000[q]
IPv6 routes (LPM entries in hardware)—maximum number of IPv6 routes in hardware.	ExtremeSwitching X460-G2	6,000
	ExtremeSwitching X450-G2	8,000
	ExtremeSwitching X670-G2, X690, X870, X590, X465, X695	65,000[q]
	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 X670-G2, X690, X870, X590, X465, X695	8,192[r]
	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 >64 single path only
	ExtremeSwitching X670-G2, X690, X870, X590, X465, X695	0–128[r]
	ExtremeSwitching X440-G2	Not supported
IP router interfaces—maximum number of VLANs performing IPv4 and/or IPv6 routing. Excludes sub-VLANs.	ExtremeSwitching X460-G2, X670-G2, X450-G2, X870, X690, X590, X465, X695	2,048
	ExtremeSwitching X620, X440-G2	510
IP multicast static routes—maximum number of permanent multicast IP routes.	ExtremeSwitching X460-G2, X670-G2, X450-G2, X870, X690, X590, X465, X695	1,024
IP unicast static routes—maximum number of permanent IP unicast routes.	ExtremeSwitching X460-G2, X670-G2, X450-G2, X870, X690, X590, X465, X695	1,024
	ExtremeSwitching X620, X440-G2	480

Table 12: 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, X670-G2, X450-G2, X620, X870, X690, X590, X465, X695	2, 4, 8, 16, 32, or 64
	ExtremeSwitching X440-G2	N/A

Table 12: 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 X670-G2	
	if maximum gateways is 2	1,022
	if maximum gateways is 4	1,022
	if maximum gateways is 8	1,022
	if maximum gateways is 16 (default)	1,022
	if maximum gateways is 32	510
	if maximum gateways is 64	254
	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 X690, X590, X465, 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 the *ExtremeXOS 30.7 User Guide*.	
	ExtremeSwitching X870	
	if maximum gateways is 2	2,046
	if maximum gateways is 4	2,046
	if maximum gateways is 8	2,046

Table 12: Supported Limits for Edge License (continued)

Metric	Product	Limit
	if maximum gateways is 16 (default) if maximum gateways is 32 if maximum gateways is 64	1,022 510 254
	ExtremeSwitching X440-G2	N/A
IP multinetting (secondary IP addresses)—maximum number of secondary IP addresses per VLAN.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695	255
Jumbo frames—maximum size supported for jumbo frames, including the CRC.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695	9,216
L2 VPN: VCCV (pseudowire Virtual Circuit Connectivity Verification) VPNs per switch—maximum number of VCCV enabled VPLS VPNs.	ExtremeSwitching X460-G2, X670-G2, X870, X690, X590, X465	16
	ExtremeSwitching X450-G2, X620, X440-G2, X695	N/A
L2 VPN: VPLS MAC addresses—maximum number of MAC addresses learned by a switch.	ExtremeSwitching X670-G2, X690, X590, X465	140,000
	ExtremeSwitching X460-G2	55,000
	ExtremeSwitching X870	65,000
	ExtremeSwitching X450-G2, X620, X440-G2, X695	N/A
L2 VPN: VPLS VPNs—maximum number of VPLS virtual private networks per switch.	ExtremeSwitching X460-G2, X670-G2, X870, X690, X590, X465	1,023
	ExtremeSwitching X450-G2, X620, X440-G2, X695	N/A
L2 VPN: VPLS peers—maximum number of VPLS peers per VPLS instance.	ExtremeSwitching X670-G2, X460-G2, X870, X690, X590, X465	64
	ExtremeSwitching X450-G2, X620, X440-G2, X695	N/A
L2 VPN: LDP pseudowires—maximum number of pseudowires per switch.	ExtremeSwitching X670-G2, X460-G2, X870, X690, X590, X465	7,000
	ExtremeSwitching X450-G2, X620, X440-G2, X695	N/A
L2 VPN: static pseudowires—maximum number of static pseudowires per switch.	ExtremeSwitching X670-G2, X460-G2, X870, X690, X590, X465	7,000
	ExtremeSwitching X450-G2, X620, X440-G2, X695	N/A
L2 VPN: Virtual Private Wire Service (VPWS) VPNs—maximum number of virtual private networks per switch.	ExtremeSwitching X670-G2, X870, X690, X590, X465	4,090
	ExtremeSwitching X460-G2	1,023
	ExtremeSwitching X450-G2, X620, X440-G2, X695	N/A

Table 12: Supported Limits for Edge License (continued)

Metric	Product	Limit
Layer-2 IPMC forwarding caches—(IGMP/MLD/PIM snooping) in mac-vlan mode. Note: • The internal lookup table configuration used is "l2-and-l3". • IPv6 and IPv4 L2 IPMC scaling is the same for this mode. • Layer-2 IPMC forwarding cache limits—(IGMP/MLD/PIM snooping) in mixed-mode are the same.	ExtremeSwitching X670-G2, X695 ExtremeSwitching X460-G2 ExtremeSwitching X450-G2 ExtremeSwitching X620, X440-G2 ExtremeSwitching X870 ExtremeSwitching X690, X590, X465	73,000 24,000 14,000 5,000 36,000 67,000
Layer-3 IPv4 Multicast—maximum number of <S,G,V> entries installed in the hardware (IP multicast compression enabled). Note: • Limit value is the same for MVR senders, PIM Snooping entries. PIM SSM cache, IGMP senders, PIM cache. • The internal lookup table configuration used is "more l3-and-ipmc". • Assumes source-group-vlan mode as look up key. • Layer 3 IPMC cache limit in mixed mode also has the same value.	ExtremeSwitching X460-G2 ExtremeSwitching X450-G2 ExtremeSwitching X670-G2 ExtremeSwitching X620, X440-G2 ExtremeSwitching X870 ExtremeSwitching X690, X590, X465 ExtremeSwitching X695	26,000 21,000 77,500 1,500 52,000 93,000 104,000
Layer-3 IPv6 Multicast—maximum number of <S,G,V> entries installed in the hardware (IP multicast compression enabled). Note: • Limit value is the same for MLD sender per switch, PIM IPv6 cache. • The internal lookup table configuration used is "more l3-and-ipmc". • Assumes source-group-vlan mode as lookup key.	ExtremeSwitching X670-G2 ExtremeSwitching X460-G2 ExtremeSwitching X450-G2 ExtremeSwitching X620, X440-G2 ExtremeSwitching X870 ExtremeSwitching X690, X590, X465 ExtremeSwitching X695	30,000 14,000 10,000 700 18,000 48,000 52,000

Table 12: Supported Limits for Edge License (continued)

Metric	Product	Limit
Load sharing—maximum number of load sharing groups. Note: The actual number of load-sharing groups that can be configured is limited by the number of physical ports present in the switch or SummitStack.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695	128
Load sharing—maximum number of ports per load-sharing group.	For standalone and stacked: ExtremeSwitching X620, X440-G2	8
	For standalone: ExtremeSwitching X670-G2, X460-G2, X450-G2, X870, X690, X590, X465, X695	32
	For stacked: ExtremeSwitching X670-G2, X460-G2, X450-G2, X670-G2, X870, X690, X590, X465, X695	64
Logged messages—maximum number of messages logged locally on the system.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695	20,000
MAC-based security—maximum number of MAC-based security policies.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695	1,024
MAC Locking—Maximum number of MAC locking stations that can be learned on a port.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695	64 (static MAC locking stations) 600 (first arrival MAC locking stations)
Meters—maximum number of meters supported.	ExtremeSwitching X460-G2, X450-G2, X670-G2, X440-G2, X620, X870, X690, X590 , X465, X695	2,048

Table 12: Supported Limits for Edge License (continued)

Metric	Product	Limit
Maximum mirroring instances.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X870, X690, X590, X465, X695 Note: Only two or four mirroring instances will be active at a time, depending on the mirroring filter added to it. There are four hardware resource slots. Each single instance uses one such slot, while each ingress plus egress instance uses two slots. You can use a total of four slots, while there are no more than two egress instances. The maximum possible combination for mirroring instances: 1. 4 ingress 2. 3 ingress + 1 egress 3. 2 ingress + 2 egress 4. 2 (ingress + egress) 5. 1 (ingress + egress) + 2 ingress 6. 1 (ingress + egress) + 1 egress + 1 ingress	16 (including default mirroring instance)
	ExtremeSwitching X620, X440-G2 Note: For stacks containing X620 or X440-G2, maximum supported egress mirror instances is 1.	1 (egress)
Mirroring (filters)—maximum number of mirroring filters. Note: This is the number of filters across all the active mirroring instances.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695	128
Mirroring, one-to-many (filters)—maximum number of one-to-many mirroring filters. Note: This is the number of filters across all the active mirroring instances.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695	128
Mirroring, one-to-many (monitor port)—maximum number of one-to-many monitor ports.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695	16

Table 12: Supported Limits for Edge License (continued)

Metric	Product	Limit
MLAG ports—maximum number of MLAG ports allowed.	ExtremeSwitching X670-G2, X690, X695	71
	ExtremeSwitching X440-G2, X450-G2	51
	ExtremeSwitching X460-G2	53
	ExtremeSwitching X620	15
	ExtremeSwitching X870	127
	ExtremeSwitching X590,	35
	ExtremeSwitching X465	55
MLAG peers—maximum number of MLAG peers allowed.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695	2
MPLS RSVP-TE interfaces—maximum number of interfaces.	ExtremeSwitching X460-G2, X670-G2, X590, X465, X870	32
	ExtremeSwitching X450-G2, X440-G2, X620	N/A
MPLS RSVP-TE ingress LSPs—maximum number of ingress LSPs.	ExtremeSwitching X460-G2, X670-G2, X870, X590,X690, X465	2,000
	ExtremeSwitching X450-G2, X440-G2, X620 X590, X465	N/A
MPLS RSVP-TE egress LSPs—maximum number of egress LSPs.	ExtremeSwitching X460-G2, X670-G2, X870, X690 X590, X465	2,000
	ExtremeSwitching X450-G2, X440-G2, X620	N/A
MPLS RSVP-TE transit LSPs—maximum number of transit LSPs.	ExtremeSwitching X460-G2, X670-G2	2,000
	ExtremeSwitching X870, X690, X590, X465	4,000
	ExtremeSwitching X450-G2, and ExtremeSwitching X440-G2, X620	N/A
MPLS RSVP-TE paths—maximum number of paths.	ExtremeSwitching X460-G2	1,000
	ExtremeSwitching X670-G2, X870, X690, X590, X465	2,000
	ExtremeSwitching X450-G2, X440-G2, X620	N/A
MPLS RSVP-TE profiles—maximum number of profiles.	ExtremeSwitching X460-G2	1,000
	ExtremeSwitching X670-G2, X870, X690 X590, X465	2,000
	ExtremeSwitching X450-G2, X440-G2, X620	N/A
MPLS RSVP-TE EROs—maximum number of EROs per path.	ExtremeSwitching X460-G2, X670-G2, X870, X690 X590, X465	64
	ExtremeSwitching X450-G2, and ExtremeSwitching X440-G2, X620	N/A

Table 12: Supported Limits for Edge License (continued)

Metric	Product	Limit
MPLS LDP peers—maximum number of MPLS LDP peers per switch.	ExtremeSwitching X670-G2, X460-G2, X870, X690 X590, X465	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 X670-G2, X870, X690 X590, X465	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 X670-G2, X460-G2, X870, X690 X590, X465	2,048
	ExtremeSwitching X450-G2, X440-G2, X620	N/A
MPLS LDP-enabled interfaces—maximum number of MPLS LDP configured interfaces per switch.	ExtremeSwitching X670-G2, X460-G2, X870, X690 X590, X465	128
	ExtremeSwitching X450-G2, X440-G2, X620	N/A
MPLS LDP transit LSPs—maximum number of MPLS transit LSPs per switch.	ExtremeSwitching X670-G2, X460-G2, X870, X690 X590, X465	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 X670-G2, X460-G2, X870, X690 X590, X465	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 X870, X690, X590, X465, X670-G2	8,000
	ExtremeSwitching X450-G2, X440-G2, X620	N/A
MPLS static ingress LSPs—maximum number of static ingress LSPs.	ExtremeSwitching X460-G2, X870, X690 X590, X465	4,000
	ExtremeSwitching X670-G2	2,048
	ExtremeSwitching X450-G2, X440-G2, X620	N/A
MPLS static transit LSPs—maximum number of static transit LSPs	ExtremeSwitching X670-G2, X460-G2, X870, X690 X590, X465	4,000
	ExtremeSwitching X450-G2, X440-G2, X620	N/A
Multicast listener discovery (MLD) snooping per-VLAN filters—maximum number of VLANs supported in per-VLAN MLD snooping mode.	ExtremeSwitching X460-G2, X670-G2, X870	768
	ExtremeSwitching X450-G2	508
	ExtremeSwitching X620, X440-G2	256
	ExtremeSwitching X690, X590, X465, X695	1,500

Table 12: Supported Limits for Edge License (continued)

Metric	Product	Limit
Multicast listener discovery (MLD)v1 subscribers—maximum number of MLDv1 subscribers per port.[n]	ExtremeSwitching X670-G2, X450-G2, X460-G2	4,000
	ExtremeSwitching X620, X440-G2	3,500
	ExtremeSwitching X870, X690, X590, X465, 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 X670-G2	30,000
	ExtremeSwitching X870, X690, X590, X465, X695	45,000
Multicast listener discovery (MLD)v2 subscribers—maximum number of MLDv2 subscribers per port.[n]	ExtremeSwitching X670-G2, X460-G2, X450-G2	4,000
	ExtremeSwitching X620, X440-G2	3,500
	ExtremeSwitching X870, X690, X590, X465, X695	4,000
Multicast listener discovery (MLD)v2 subscribers—maximum number of MLDv2 subscribers per switch.[n]	ExtremeSwitching X670-G2	30,000
	ExtremeSwitching X460-G2, X450-G2, X620, X440-G2	10,000
	ExtremeSwitching X870, X690, X590, X465, X695	45,000
Multicast listener discovery (MLD)v2 maximum source per group—maximum number of source addresses per group.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465 , X695	200
Multicast listener discovery (MLD) SSM-map entries—maximum number of MLD SSM mapping entries.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X870, X690, X590, X465, X695	500
	ExtremeSwitching X440-G2, X620	50
Multicast listener discovery (MLD) SSM-MAP entries—maximum number of sources per group in MLD SSM mapping entries.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695	50
Network Login—maximum number of clients being authenticated on MAC-based VLAN enabled ports.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465, 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	1,024
	ExtremeSwitching X670-G2, X870, X690, X695	512
	ExtremeSwitching X620, X440-G2	256
Network Login—maximum number of dynamic VLANs.	ExtremeSwitching X460-G2, X450-G2, X670-G2, X870, X690, X590, X465, X695	2,000
	ExtremeSwitching X440-G2, X620	1,024

Table 12: Supported Limits for Edge License (continued)

Metric	Product	Limit
Network Login VLAN VSAs—maximum number of VLANs a client can be authenticated on at any given time.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695	10
Network Service Identifiers (NSI)/ VLAN mappings—maximum number of VLANs to NSI mappings.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695	94
Node Alias—maximum number of entries per slot.	ExtremeSwitching X450-G2, X460-G2, X670-G2 X620, X440-G2, X870, X690, X590, X465, X695	8,192
ONEPolicy Roles/Profiles—maximum number of policy roles/ profiles.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695	63
ONEPolicy Rules per Role/Profile—maximum number of rules per role/policy.	ExtremeSwitching X450-G2, X460-G2	IPv6 rules: 256 IPv4 rules: 256 L2 Rules: 184 MAC Rules: 256
	ExtremeSwitching X670-G2, X870	IPv6 Rules: 256 L2 Rules: 184 MAC Rules: 256 IPv4 Rules: 256
	ExtremeSwitching X620, X440-G2	IPv6 and Mac Rules: 0 Ipv4 Rules: 256 (per switch) L2 Rules: 184 (per switch)
	ExtremeSwitching X465, X690, X590, X695	IPv4 Rules: 512 IPv6 Rules: 512 MAC Rules: 512 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 X670-G2, X690, X870, X695	512
	ExtremeSwitching X620, X440-G2	256
	Stacking	Depends on the stack nodes, but the maximum is 65,535.

Table 12: 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. Note: The maximum values assume 75% utilization of VLAN-XLATE hash table.	ExtremeSwitching X690, X590, X465	24,576
	ExtremeSwitching X670-G2, X460-G2, X870, 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. Note: The maximum values assume 75% utilization of VLAN-XLATE hash table.	ExtremeSwitching X450-G2	6,144
	ExtremeSwitching X460-G2, X670-G2, X870, X695	12,288
	ExtremeSwitching X690, X590, X465	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 X670-G2, X870, 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, X670-G2, X870	952
	ExtremeSwitching X620, X440-G2	440
	ExtremeSwitching X690, X590, X465, X695	1,976
ONEPolicy Permit/Deny Traffic Classification Rules Types—maximum number of unique MAC permit/deny traffic classification rules types (macsource/macdest).	ExtremeSwitching X450-G2, X460-G2, X670-G2, X870	256
	ExtremeSwitching X620, X440-G2	N/A
	ExtremeSwitching X690, X590, X465, 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, X670-G2, X870	256
	ExtremeSwitching X620, X440-G2	N/A
	ExtremeSwitching X690, X590, X465, X695	512
ONEPolicy Permit/Deny Traffic Classification Rules Types—maximum number of unique IPv4 permit/deny traffic classification rules (typesipsource / ipdest / ipfrag / udpsourceportIP / udpdestportIP / tcpsourceportIP / tcpdestportIP / ipttl / iptos / iptype).	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870	256
	ExtremeSwitching X690, X590, X465, X695	512

Table 12: Supported Limits for Edge License (continued)

Metric	Product	Limit
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, X670-G2, X870	184
	ExtremeSwitching X620, X440-G2	184
	ExtremeSwitching X690, X590, X465, X695	440
Policy-based routing (PBR) redundancy—maximum number of flow-redirects.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590 , X465 , X695	256 [O]
Policy-based routing (PBR) redundancy—maximum number of next hops per each flow-direct.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590 , X465, X695	32 [O]
Private VLANs—maximum number of subscribers. Assumes a minimum of one port per network and subscriber VLAN.	ExtremeSwitching X670-G2	63
	ExtremeSwitching X460-G2	53
	ExtremeSwitching X450-G2	51
	ExtremeSwitching X440-G2	47
	ExtremeSwitching X620	15
	ExtremeSwitching X870	127
	ExtremeSwitching X690, X695	71
	ExtremeSwitching X590, X465	31
Private VLANs—maximum number of private VLANs with an IP address on the network VLAN. Note: This limit is dependent on the maximum number of private VLANs in an L2-only environment if the configuration has tagged and translated ports.	ExtremeSwitching X670-G2, X460-G2, X870, X690, X590, X465, 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 X670-G2, X460-G2, X870, X690, X590, X465, X695	1,280
	ExtremeSwitching X450-G2	597
	ExtremeSwitching X440-G2, X620	255
PTP/1588v2 Clock Ports	ExtremeSwitching X460-G2, X670-G2	32 for boundary clock 1 for ordinary clock
	ExtremeSwitching X440-G2, X465, X620, X870, X690, X590, X695	N/A

Table 12: Supported Limits for Edge License (continued)

Metric	Product	Limit
PTP/1588v2 Clock Instances	ExtremeSwitching X670-G2, X460-G2	2 combinations: • Transparent clock + ordinary clock • Transparent clock + boundary clock
	ExtremeSwitching X440-G2, X465, X620, X870, X690, X590 , X695	N/A
PTP/1588v2 Unicast Static Slaves	ExtremeSwitching X670-G2, X460-G2	40 entries per clock port
	ExtremeSwitching X440-G2, X465, X620, X870, X690, X590 , X695	N/A
PTP/1588v2 Unicast Static Masters	ExtremeSwitching X670-G2, X460-G2	10 entries per clock type
	ExtremeSwitching X440-G2, X465, X620, X870, X690, X590, X695	N/A
Route policies—suggested maximum number of lines in a route policy file.	ExtremeSwitching X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465 , X695	10,000
RIP Learned Routes—maximum number of RIP routes supported without aggregation.	ExtremeSwitching X670-G2, X460-G2, X440-G2, X620, X870, X690, X590 , X465 , X695	10,000
RIP interfaces on a single router—recommended maximum number of RIP routed interfaces on a switch.	ExtremeSwitching X670-G2, X460-G2, X450-G2, X870, X690, X590 , X465, X695	256
	ExtremeSwitching X440-G2, X620	128
RIPng learned routes—maximum number of RIPng routes.	ExtremeSwitching X670-G2, X460-G2, X450-G2, X870, X690, X590 , X465, 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, X670-G2, X460-G2, X620, X870, X690, X590 , X465, X695	64
	ExtremeSwitching X440-G2	32

Table 12: Supported Limits for Edge License (continued)

Metric	Product	Limit
Spanning Tree PVST+—maximum number of port mode PVST domains. Note: For all platforms, the maximum number of active ports per PVST domain depends on the maximum number of spanning tree ports supported on given platform. For example, ExtremeSwitching X670-G2 supports 256 PVST domains (maximum), and 4,096 STP ports (maximum), so the maximum number of active ports per PVST domain would be 16 ports (4,096 ÷ 256).	ExtremeSwitching X670-G2, X620	256
	ExtremeSwitching X460-G2, X450-G2, X440-G2	128
	ExtremeSwitching X870, X690, X590 , X465, X695	384
Spanning Tree—maximum number of multiple spanning tree instances (MSTI) domains.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X870, X690, X590 , X465, X695	64
	ExtremeSwitching X440-G2	32
Spanning Tree—maximum number of VLANs per MSTI. Note: Maximum number of 10 active ports per VLAN when all 500 VLANs are in one MSTI.	ExtremeSwitching X670-G2	500
	ExtremeSwitching X460-G2, X450-G2, X620, X870, X690, X590 , X465, X695	600
	ExtremeSwitching X440-G2	256
Spanning Tree—maximum number of VLANs on all MSTP instances.	ExtremeSwitching X670-G2, X460-G2, X450-G2, X620, X870, X690, X590 , X465, X695	1,024
	ExtremeSwitching X440-G2	512
Spanning Tree (802.1d domains)—maximum number of 802.1d domains per port.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590 , X465, X695	1
Spanning Tree (number of ports)—maximum number of ports including all Spanning Tree domains.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X870, X690, X590, X465, X695	4,096
	ExtremeSwitching X440-G2	2,048
Spanning Tree (maximum VLANs)—maximum number of STP-protected VLANs (dot1d and dot1w).	ExtremeSwitching X670-G2, X460-G2, X450-G2, X620, X870, X690, X590, X465, X695	1,024
	ExtremeSwitching X440-G2	600
SSH (number of sessions)—maximum number of simultaneous SSH sessions.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695	8
Static MAC multicast FDB entries—maximum number of permanent multicast MAC entries configured into the FDB.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695	1,024

Table 12: Supported Limits for Edge License (continued)

Metric	Product	Limit
Syslog servers—maximum number of simultaneous Syslog servers that are supported.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695	16
Syslog targets—maximum number of configurable Syslog targets.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695	16
Telnet (number of sessions)—maximum number of simultaneous Telnet sessions.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465 , X695	8
Virtual routers—maximum number of user-created virtual routers that can be created on a switch.	ExtremeSwitching X460-G2, X670-G2, X450-G2, X870, X690, X590 , X465, X695 ExtremeSwitching X440-G2, X620	63 16 (local-only VRs)
Virtual router forwarding (VRFs)—maximum number of VRFs that can be created on a switch. Note: * Subject to other system limitations.	ExtremeSwitching X460-G2, X670-G2, X450-G2, X870, X690, X590 , X465, X695 ExtremeSwitching X440-G2, X620	960 * 16 (local-only VRFs)
Virtual router protocols per VR—maximum number of routing protocols per VR.	ExtremeSwitching X460-G2, X670-G2, X450-G2, X870, X690, X590, X465, X695 ExtremeSwitching X440-G2, X620	8 N/A
Virtual router protocols per switch—maximum number of VR protocols per switch.	ExtremeSwitching X460-G2, X670-G2, X450-G2, X870, X690, X590, X465, X695 ExtremeSwitching X440-G2, X620	64 N/A
VLAN aggregation—maximum number of port-VLAN combinations on any one superVLAN and all of its subVLANs.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695	1,000
VLANs—includes all VLANs. Note: ExtremeXOS supports only 4,092 user-configurable VLANs. (VLAN 1 is the default VLAN, and 4,095 is the management VLAN, and you may not configure them.)	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590 , X465, X695	4,094
VLANs (Layer 2)—maximum number of Layer 2 VLANs.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590 , X465, X695	4,094
VLANs (Layer 3)—maximum number of VLANs performing IPv4 and/or IPv6 routing. Excludes sub-VLANs.	ExtremeSwitching X460-G2, X670-G2, X450-G2, X870, X690, X590, X465, X695 ExtremeSwitching X440-G2, X620	2,048 510

Table 12: Supported Limits for Edge License (continued)

Metric	Product	Limit
VLAN Port Interfaces (VPIF)—maximum number of VLAN port interfaces.	ExtremeSwitching X440-G2, X450-G2, X460-G2, X465, , X590, X670-G2, X620, X690, X870, X695	131,585
VLANs (maximum active port-based)—maximum active ports per VLAN when 4,094 VLANs are configured with the default license.	ExtremeSwitching X670-G2, X870, X690, X590 , X465, X695	32
	ExtremeSwitching X440-G2	28
	ExtremeSwitching X460-G2	26
	ExtremeSwitching X620	16
	ExtremeSwitching X450-G2	29
	ExtremeSwitching X460-G2	24
VLANs (maximum active protocol-sensitive filters)—number of simultaneously active protocol filters in the switch.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2. X870, X690, X590 , X465, X695	16
VLAN translation—maximum number of translation VLANs. Assumes a minimum of one port per translation and member VLAN.	ExtremeSwitching X670-G2	63
	ExtremeSwitching X460-G2	53
	ExtremeSwitching X450-G2	51
	ExtremeSwitching X620	15
	ExtremeSwitching X440-G2	47
	ExtremeSwitching X870	127
	ExtremeSwitching X690, X695	71
	ExtremeSwitching X590, X465	31
VLAN translation—maximum number of translation VLAN pairs with an IP address on the translation VLAN. Note: This limit is dependent on the maximum number of translation VLAN pairs in an L2-only environment if the configuration includes tagged and translated ports.	ExtremeSwitching X670-G2, X465, X870, X690, X590, 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, X670-G2, X460-G2, X870, X690, X590, X465, X695	2,046
	ExtremeSwitching X440-G2, X620	255

Table 12: Supported Limits for Edge License (continued)

Metric	Product	Limit
XML requests—maximum number of XML requests per second. Note: Limits are dependent on load and type of XML request. These values are dynamic ACL data requests.	ExtremeSwitching X460-G2, X670-G2, X450-G2, X440-G2, X620, X870, X690, X590, X465, X695	10 with 100 DACLs
XNV authentication—maximum number of VMs that can be processed (combination of local and network VMs).	ExtremeSwitching X460-G2, X670-G2, X870, X690, X590, X465, X695 ExtremeSwitching X450-G2, X440-G2, X620	2,048 1,024
XNV database entries—maximum number of VM database entries (combination of local and network VMs).	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695	16,000
XNV database entries—maximum number of VPP database entries (combination of local and network VPPs).	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695	2,048
XNV dynamic VLAN—Maximum number of dynamic VLANs created (from VPPs /local VMs).	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695	2,048
XNV local VPPs—maximum number of XNV local VPPs.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695	2,048 ingress 512 egress
XNV policies/dynamic ACLs—maximum number of policies/ dynamic ACLs that can be configured per VPP.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695	8 ingress 4 egress
XNV network VPPs—maximum number of XNV network VPPs.[p]	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695	2,048 ingress 512 egress

Supported Limits for Advanced Edge License

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

Table 13: Supported Limits for Advanced Edge License

Metric	Product	Limit
BGP auto-peering—maximum number of auto-peering nodes and VTEPs.	ExtremeSwitching X670-G2, X690, X870, X590, X465, X695	64
BGP auto-peering attached IPv4 hosts— maximum number of attached IPv4 hosts.	ExtremeSwitching X670-G2 ExtremeSwitching X870, X690, X590, X465, X695	16,000 64,000

Table 13: Supported Limits for Advanced Edge License (continued)

Metric	Product	Limit
BGP auto-peering attached IPv6 hosts— maximum number of attached IPv6 hosts.	ExtremeSwitching X670-G2	254
	ExtremeSwitching X870, X690, X590, X465, X695	8,000
BGP auto-peering ECMP—maximum number of equal cost multipath for auto-peering. Note: * Subject to the limitation imposed by the number of physical ports on a switch.	ExtremeSwitching X670-G2, ExtremeSwitching X690, X870, X590, X465, X695	16*
BGP auto-peering maximum IPv4 prefixes with ECMP—Maximum number of IPv4 Network prefixes with ECMP.	ExtremeSwitching X670-G2, ExtremeSwitching X690, X870, X590, X465, X695	64,000
BGP auto-peering maximum IPv6 prefixes with ECMP—Maximum number of IPv6 Network prefixes with ECMP.	ExtremeSwitching X670-G2, X690, X870, X590, X465, X695	8,000
BGP auto-peering MLAG peers—maximum MLAG peers per AutoBGP node.	ExtremeSwitching X670-G2, X690, X870, X590, X465, X695	1
BGP auto-peering VRFs—maximum number of VRFs.	ExtremeSwitching X670-G2, X690, X870, X590, X465, X695	64
BGP auto-peering EVPN instances—maximum EVPN instances.	ExtremeSwitching X670-G2, X690, X870, X590, X465, X695	1,024
EAPS domains—maximum number of EAPS domains. Note: An EAPS ring that is being spatially reused cannot have more than four configured EAPS domains.	ExtremeSwitching X870, X690, X590, X465, X695	128
	ExtremeSwitching X670-G2, X450-G2, X460-G2	64
	ExtremeSwitching X440-G2, X620	32
EAPSv2 protected VLANs—maximum number of protected VLANs.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X440-G2, X620	500
	ExtremeSwitching X870, X690, X590, X465, X695	2,000
ERPS domains—maximum number of ERPS domains without CFM configured.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695	32
ERPS domains—maximum number of ERPS domains with CFM configured.	ExtremeSwitching X450-G2, X670-G2, X620, X870, X690, X590, X465, X695	16
	ExtremeSwitching X460-G2	32

Table 13: Supported Limits for Advanced Edge License (continued)

Metric	Product	Limit
ERPSv1 protected VLANs—maximum number of protected VLANs.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X870, X690, X590, X465, X695	2,000
	ExtremeSwitching X620, X440-G2	1,000
ERPSv2 protected VLANs—maximum number of protected VLANs.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X870, X690, X590, X465, X695	2,000
	ExtremeSwitching X620, X440-G2	500
ESRP groups—maximum number of ESRP groups	ExtremeSwitching X450-G2, X460-G2, X670-G2, X440-G2, X620, X870, X690, X590, X465, X695	32
ESRP domains—maximum number of ESRP domains.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695	64
ESRP L2 VLANs—maximum number of ESRP VLANs without an IP address configured.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695	1,000
ESRP L3 VLANs—maximum number of ESRP VLANs with an IP address configured.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695	511
ESRP (maximum ping tracks)—maximum number of ping tracks per VLAN.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695	8
ESRP (IP route tracks)—maximum IP route tracks per VLAN.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695	8
ESRP (VLAN tracks)—maximum number of VLAN tracks per VLAN.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695	1
OSPFv2/v3 ECMP—maximum number of equal cost multipath OSPFv2 and OSPFv3.	ExtremeSwitching X460-G2, X670-G2, X450-G2, X870, X690, X590, X465, X695	64
	ExtremeSwitching X620	4
	ExtremeSwitching X440-G2	N/A
OSPFv2 areas—as an ABR, how many OSPF areas are supported within the same switch.	ExtremeSwitching X460-G2, X670-G2, X870, X690, X590, X465, X695	8
	ExtremeSwitching X450-G2, X440-G2, X620	4
OSPFv2 external routes—recommended maximum number of external routes contained in an OSPF LSDB.	ExtremeSwitching X870, X690, X590, X465, X695	10,000
	ExtremeSwitching X670-G2, 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 X870, X690, X590, X465, X695	4,000
	ExtremeSwitching X670-G2, X460-G2	2,000
	ExtremeSwitching X450-G2, X440-G2, X620	1,000

Table 13: Supported Limits for Advanced Edge License (continued)

Metric	Product	Limit
OSPFv2 interfaces—recommended maximum number of OSPF interfaces on a switch (active interfaces only).	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695	4
OSPFv2 links—maximum number of links in the router LSA.	ExtremeSwitching X460-G2, X670-G2, X870, X690, X590, X465, X695	400
	ExtremeSwitching X450-G2, X620, X440-G2	4
OSPFv2 neighbors—maximum number of supported OSPF adjacencies.	ExtremeSwitching X450-G2, X670-G2, X460-G2, X440-G2, X620, X870, X690, X590, X465, X695	4
OSPFv2 routers in a single area—recommended maximum number of routers in a single OSPF area.	ExtremeSwitching X870, X690, X590, X465, X695	100
	ExtremeSwitching X670-G2, X460-G2	50
	ExtremeSwitching X450-G2, X440-G2, X620	4
OSPFv2 virtual links—maximum number of supported OSPF virtual links.	ExtremeSwitching X460-G2, X670-G2, X870, X690, X590, X465, X695	32
	ExtremeSwitching X450-G2, X440-G2, X620	4
OSPFv3 areas—as an ABR, the maximum number of supported OSPFv3 areas.	ExtremeSwitching X870, X690, X590, X465, X695	100
	ExtremeSwitching X460-G2, X670-G2	16
	ExtremeSwitching X450-G2, X440-G2, X620	4
OSPFv3 external routes—recommended maximum number of external routes.	ExtremeSwitching X670-G2, X460-G2, X870, X690, X590, X465, 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 X870, X690, X590, X465, X695	4.000
	ExtremeSwitching X670-G2, X460-G2	3,000
	ExtremeSwitching X450-G2, X440-G2, X620	500
OSPFv3 interfaces—maximum number of OSPFv3 interfaces (active interfaces only).	ExtremeSwitching X670-G2, X460-G2, X450-G2, X870, X690, X440-G2, X620, X590, X465, X695	4
OSPFv3 neighbors—maximum number of OSPFv3 neighbors.	ExtremeSwitching X450-G2, X670-G2, X460-G2, X870, X690, X440-G2, X620, X590, X465, X695	4
OSPFv3 virtual links—maximum number of OSPFv3 virtual links supported.	ExtremeSwitching X670-G2, X460-G2, X870, X690, X590, X465, X695	16
	ExtremeSwitching X450-G2, X440-G2, X620	4
PIM IPv4 (maximum interfaces)—maximum number of PIM active interfaces.	ExtremeSwitching X460-G2, X670-G2, X450-G2, X870, X440-G2, X620, X690, X590, X465, X695	4

Table 13: Supported Limits for Advanced Edge License (continued)

Metric	Product	Limit
PIM IPv4 Limits—maximum number of multicast groups per dynamic rendezvous point.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465 , X695	180
PIM IPv4 Limits—maximum number of multicast groups per static rendezvous point.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465 , X695	3,000 (depends on policy file limits)
PIM IPv4 Limits—maximum number of multicast sources per group.	ExtremeSwitching X460-G2, X670-G2, X450-G2, X870, X690, X590 , X465, X695 ExtremeSwitching X440-G2, X620	5,000 1,500
PIM IPv4 Limits—maximum number of dynamic rendezvous points per multicast group.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590 , X465 , X695	145
PIM IPv4 Limits—static rendezvous points.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590 , X465 , X695	32
PIM IPv6 (maximum interfaces)—maximum number of PIM active interfaces.	ExtremeSwitching X460-G2, X670-G2, X450-G2, X870, X440-G2, X620, X690, X590 , X465, X695	4
PIM IPv6 Limits—maximum number of multicast sources per group.	ExtremeSwitching X460-G2, X670-G2, X870, X690, X590 , X465, X695 ExtremeSwitching X450-G2 ExtremeSwitching X440-G2, X620	1,750 1,500 550
PIM IPv6 Limits—maximum number of multicast groups per dynamic rendezvous point.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465 , X695	70
PIM IPv6 Limits—maximum number of multicast groups per static rendezvous point.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465 , 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, X670-G2, X620, X440-G2, X870, X690, X590, X465 , X695	64
PIM IPv6 Limits—maximum number of secondary addresses per interface.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590 , X465 , X695	70
PIM IPv6 Limits—static rendezvous points.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590 , X465 , X695	32
Port-specific VLAN tags—maximum number of port-specific VLAN tags.	ExtremeSwitching X460-G2, X670-G2, X770, X870, X690, X590 , X465, X695 ExtremeSwitching X450-G2, X440-G2, X620	1,023 N/A

Table 13: Supported Limits for Advanced Edge License (continued)

Metric	Product	Limit
Port-specific VLAN tags—maximum number of port-specific VLAN tag ports.	ExtremeSwitching X460-G2, X670-G2, X870, X690, X590, X465, X695	4,000
	ExtremeSwitching X450-G2, X440-G2, X620	N/A
VRRP (v2/v3-IPv4) (maximum instances)—maximum number of VRRP instances for a single switch, with Advanced Edge license or higher. Note: These limits are applicable for Fabric Routing configuration also. Note: Number of groups configured should not exceed the number of individual VRs supported (that is, in normal mode) for that platform type.	Normal Mode (as individual VRs):	
	ExtremeSwitching X670-G2, X460-G2, X450-G2, X870, X690, X590, X465, X695	511
	ExtremeSwitching X440-G2, X620	128
	Scaled Mode (with groups):	
	ExtremeSwitching X670-G2, X460-G2, X450-G2, X870, X690, X590, X465, 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 license or higher. (VRRP-VRRPv3-IPv6) Note: These limits are applicable for Fabric Routing configuration also. Note: Number of groups configured should not exceed the number of individual VRs supported (that is, in normal mode) for that platform type.	Normal Mode (as individual VRs):	
	ExtremeSwitching X670-G2, X460-G2, X450-G2, X870, X690, X590, X465, X695	511
	ExtremeSwitching X440-G2, X620	128
	Scaled Mode (with groups):	
	ExtremeSwitching X670-G2, X460-G2, X450-G2, X870, X690, X590, X465, X695	2,048
	ExtremeSwitching X440-G2, X620	128
VRRP (v2/v3-IPv4/IPv6) (maximum VRID)—maximum number of unique VRID numbers per switch.	ExtremeSwitching X670-G2, X460-G2, X450-G2 X440-G2, X620, X870, X690, X590, X465, X695 Note: With Advanced Edge license or higher.	255
VRRP (v2/v3-IPv4/IPv6) (maximum VRIDs per VLAN)—maximum number of VRIDs per VLAN.	ExtremeSwitching X670-G2, X460-G2, X450-G2 X440-G2, X620, X870, X690, X590, X465, X695 Note: With Advanced Edge license or higher.	255
VRRP (v2/v3-IPv4/IPv6) (maximum ping tracks)—maximum number of ping tracks per VLAN.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695 Note: With Advanced Edge license or higher.	8

Table 13: 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, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695	8 (20 centisecond or 1 second hello interval)
VRRP (v3-IPv6) (maximum ping tracks)—maximum number of ping tracks per VRRP Instance under 128 VRRP instances, with Advanced Edge license or higher.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695	8 (20 centisecond or 1 second hello interval)
VRRP (v2/v3-IPv4/IPv6) (maximum iproute tracks)—maximum number of IP route tracks per VLAN.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695	8
VRRP (v2/v3-IPv4/IPv6)—maximum number of VLAN tracks per VLAN.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465, X695	8
VXLAN—maximum virtual networks. Note: Every VPLS instance/PSTag VLAN reduces this limit by 1. Note: Assumption is all BUM (broadcast/unknown-unicast/multicast) FDB entries are pointing to the same set of RTEPs when all VNETs use explicit flooding. Depends on whether all VNETs use standard or explicit and the number of tenant VLAN ports.	ExtremeSwitching X670-G2, X870, X690, X590, X465, X695 ExtremeSwitching X460-G2, X450-G2, X440-G2, X620	2,048–4,000 N/A
VXLAN—maximum tenant VLANs plus port combinations Note: Every (VPLS/PSTag VLAN) + port reduces the limit by 1.	ExtremeSwitching X670-G2, X870, X690, X590, X465, X695 ExtremeSwitching X460-G2, X450-G2, X440-G2, X620	4,096 N/A
VXLAN—maximum static MAC to IP bindings. Note: Every FDB entry configured reduces this limit by 1.	ExtremeSwitching X670-G2, X870, X690, X590, X465, X695 ExtremeSwitching X460-G2, X450-G2, X440-G2, X620	64,000 N/A
VXLAN—maximum RTEP IP addresses	ExtremeSwitching X670-G2, X870, X690, X590, X465, X695 ExtremeSwitching X460-G2, X450-G2, X440-G2, X620	512 N/A

Table 13: Supported Limits for Advanced Edge License (continued)

Metric	Product	Limit
VXLAN—maximum virtual networks with dynamic learning and OSPF extensions for VXLAN	ExtremeSwitching X670-G2, X870, X690, X590, X465, X695	4,000
	ExtremeSwitching X460-G2, X450-G2, X440-G2, X620	N/A

Supported Limits for Core License

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

Table 14: Supported Limits for Core License

Metric	Product	Limit
BGP (aggregates)—maximum number of BGP aggregates.	ExtremeSwitching X460-G2, X670-G2, X870, X690, X590, X465, X695	256
	ExtremeSwitching X450-G2	204
BGP (networks)—maximum number of BGP networks.	ExtremeSwitching X460-G2, X670-G2, X870, X690, X590, X465, X695	1,024
	ExtremeSwitching X450-G2	820
BGP (peers)—maximum number of BGP peers. Note: With default keepalive and hold timers. Note: Each BGPv4/BGPv6 peer handles a maximum of 50 routes. Note: ECMP should not be enabled for BGP.	ExtremeSwitching X460-G2, X670-G2, X870	128
	ExtremeSwitching , X590, X465, X695	300
	ExtremeSwitching X450-G2	100
	ExtremeSwitching X690	500
BGP (peer groups)—maximum number of BGP peer groups.	ExtremeSwitching X460-G2, X670-G2, X870, X690, X590, X465, X695	64
	ExtremeSwitching X450-G2	50
BGP (policy entries)—maximum number of BGP policy entries per route policy.	ExtremeSwitching X460-G2, X670-G2, X870, X690, X590, X465, X695	256
	ExtremeSwitching X450-G2	204
BGP (policy statements)—maximum number of BGP policy statements per route policy.	ExtremeSwitching X460-G2, X670-G2, X870, X690, X590, X465, X695	1,024
	ExtremeSwitching X450-G2	820
BGP multicast address-family routes—maximum number of multicast address-family routes.	ExtremeSwitching X460-G2, X670-G2, X870, X690, X590, X465, X695	25,000
	ExtremeSwitching X450-G2	20,000

Table 14: Supported Limits for Core License (continued)

Metric	Product	Limit
BGP (unicast address-family routes)—maximum number of unicast address-family routes.	ExtremeSwitching X460-G2, X670-G2, X870, X690, X590 , X465 , X695 (at default)	25,000
	ExtremeSwitching X870, X690, 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, X670-G2, X870, X690, X590, X465, 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, X670-G2, X870, X690, X590, X465, 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 X670-G2	8,000
	ExtremeSwitching X870, X690, X590, X465, X695	10,000
	ExtremeSwitching X870, X690 (with ALPM enabled)	100,000
	ExtremeSwitching X450-G2	4,800
BGPv6 (non-unique routes)—maximum number of non-unique BGP routes.	ExtremeSwitching X460-G2	18,000
	ExtremeSwitching X670-G2, X870, X690, X590, X465, X695	24,000
	ExtremeSwitching X450-G2	14,000
EVPN EVI instances—maximum number of EVI instances.	ExtremeSwitching X670-G2, X870, X690, X590, X465, X695	1,024
EVPN LAGs—maximum number of LAGs.	ExtremeSwitching X670-G2, X870, X690, X590, X465, X695	128
GRE Tunnels—maximum number of GRE tunnels.	ExtremeSwitching X460-G2, X670-G2, X450-G2, X870, X690, X590, X465 , X695	255
	ExtremeSwitching X620, X440G2	N/A
IS-IS adjacencies—maximum number of supported IS-IS adjacencies.	ExtremeSwitching X460-G2, X670-G2, X870, X690, X590, X465, X695	128
	ExtremeSwitching X450-G2	N/A
IS-IS ECMP—maximum number of equal cost paths per multipath for IS-IS.	ExtremeSwitching X460-G2, X670-G2, X870, X690, X590, X465, 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, X670-G2, X770, X870, X690, X590, X465, X695	255
	ExtremeSwitching X450-G2	N/A

Table 14: Supported Limits for Core License (continued)

Metric	Product	Limit
IS-IS routers in an area—recommended maximum number of IS-IS routers in an area.	ExtremeSwitching X460-G2, X670-G2, X870, X690, X590, X465, 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, X670-G2, X870, X690, X590, X465, 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, X670-G2, X870, X690, X590, X465, 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, X670-G2, X870, X690, X590, X465, 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, X670-G2, X870, X690, X590, X465, X695	20,000
	ExtremeSwitching X450-G2	N/A
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, X670-G2, X870, X690, X590, X465, 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, X670-G2, X870, X690, X590, X465, 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/I2 router.	ExtremeSwitching X460-G2, X670-G2, X870, X690, X590, X465, 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, X670-G2, X870, X690, X590, X465, 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, X670-G2, X870, X690, X590, X465, X695	20,000
	ExtremeSwitching X450-G2	N/A

Table 14: Supported Limits for Core License (continued)

Metric	Product	Limit
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, X670-G2, X870, X690, X590, X465, X695	20,000
	ExtremeSwitching X450-G2	N/A
MSDP active peers—maximum number of active MSDP peers.	ExtremeSwitching X450-G2, X670-G2, X460-G2, X870, X690, X590, X465, X695	64
MSDP SA cache entries—maximum number of entries in SA cache.	ExtremeSwitching X670-G2, X690, X590, X465, X695	14,000
	ExtremeSwitching X460-G2	10,000
	ExtremeSwitching X870	11,000
	ExtremeSwitching X450-G2	8,000
MSDP maximum mesh groups—maximum number of MSDP mesh groups.	ExtremeSwitching X450-G2, X670-G2, X460-G2, X870, X690, X590, X465, X695	16
OSPFv2/v3 ECMP—maximum number of equal cost multipath OSPFv2 and OSPFv3.	ExtremeSwitching X460-G2, X670-G2, X450-G2, X870, X690, X590, X465, X695	64
OSPFv2 areas—as an ABR, how many OSPF areas are supported within the same switch.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X870, X690, X590, X465, X695	8
OSPFv2 external routes—recommended maximum number of external routes contained in an OSPF LSDB.	ExtremeSwitching X870, X690, X590, X465, X695	10,000
	ExtremeSwitching X670-G2, 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 X870, X690, X590, X465, X695	4,000
	ExtremeSwitching X670-G2, X460-G2	2,000
	ExtremeSwitching X450-G2	1,600
OSPFv2 interfaces—recommended maximum number of OSPF interfaces on a switch (active interfaces only).	ExtremeSwitching X460-G2, X670-G2, X870, X690, X590, X465, X695	400
	ExtremeSwitching X450-G2	320
OSPFv2 links—maximum number of links in the router LSA.	ExtremeSwitching X460-G2, X670-G2, X870, X690, X590, X465, X695	400
	ExtremeSwitching X450-G2	320
OSPFv2 neighbors—maximum number of supported OSPF adjacencies.	ExtremeSwitching X670-G2, X460-G2, X870, X690, X590, X465, X695	128
	ExtremeSwitching X450-G2	96

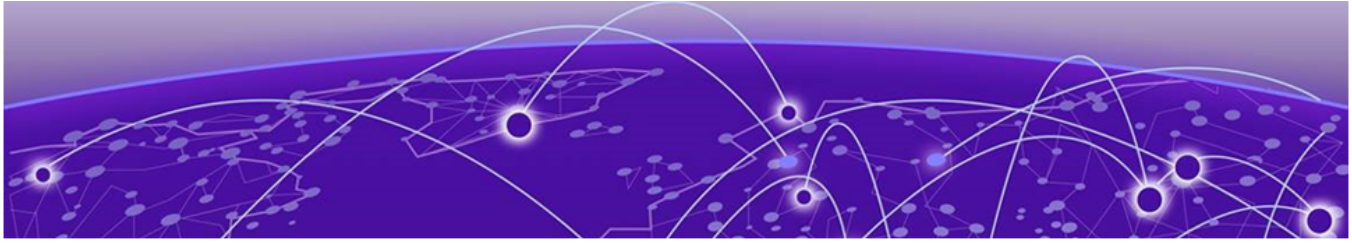
Table 14: Supported Limits for Core License (continued)

Metric	Product	Limit
OSPFv2 routers in a single area—recommended maximum number of routers in a single OSPF area.	ExtremeSwitching X870, X690, X590, X465, X695	100
	ExtremeSwitching X670-G2, X460-G2	50
	ExtremeSwitching X450-G2	40
OSPFv2 virtual links—maximum number of supported OSPF virtual links.	ExtremeSwitching X460-G2, X670-G2, X870, X690, X590, X465, X695	32
	ExtremeSwitching X450-G2	25
OSPFv3 areas—as an ABR, the maximum number of supported OSPFv3 areas.	ExtremeSwitching X870, X690, X590, X465, X695	100
	ExtremeSwitching X460-G2, X670-G2	16
	ExtremeSwitching X450-G2	12
OSPFv3 external routes—recommended maximum number of external routes.	ExtremeSwitching X670-G2, X460-G2, X870, X690, X590, X465, X695	10,000
	ExtremeSwitching X450-G2	7,500
OSPFv3 inter- or intra-area routes—recommended maximum number of inter- or intra-area routes.	ExtremeSwitching X870, X690, X590, X465, X695	4.000
	ExtremeSwitching X670-G2, X460-G2	3,000
	ExtremeSwitching X450-G2	500
OSPFv3 interfaces—maximum number of OSPFv3 interfaces (active interfaces only).	ExtremeSwitching X670-G2, X460-G2, X870, X690, X590, X465, X695	256
	ExtremeSwitching X450-G2	192
OSPFv3 neighbors—maximum number of OSPFv3 neighbors.	ExtremeSwitching X670-G2, X460-G2, X870, X690, X590, X465, X695	64
	ExtremeSwitching X450-G2	48
OSPFv3 virtual links—maximum number of OSPFv3 virtual links supported.	ExtremeSwitching X670-G2, X460-G2, X870, X690, X590, X465, X695	16
	ExtremeSwitching X450-G2	12
PIM IPv4 (maximum interfaces)—maximum number of PIM active interfaces.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X870, X690, X590, X465, X695	255
PIM IPv4 Limits—maximum number of multicast groups per dynamic rendezvous point.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X870, X690, X590 , X465, X695	180
PIM IPv4 Limits—maximum number of multicast groups per static rendezvous point.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X870, X690, X590, X465, X695	3,000 (depends on policy file limits)
PIM IPv4 Limits—maximum number of multicast sources per group.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X870, X690, X590 , X465, X695	5,000

Table 14: Supported Limits for Core License (continued)

Metric	Product	Limit
PIM IPv4 Limits—maximum number of dynamic rendezvous points per multicast group.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X870, X690, X590 , X465, X695	145
PIM IPv4 Limits—static rendezvous points.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X870, X690, X590 , X465, X695	32
PIM IPv6 (maximum interfaces)—maximum number of PIM active interfaces.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X870, X690, X590 , X465, X695	255
PIM IPv6 Limits—maximum number of multicast sources per group.	ExtremeSwitching X460-G2, X670-G2, X870, X690, X590 , X465, X695 ExtremeSwitching X450-G2,	1,750 1,500
PIM IPv6 Limits—maximum number of multicast groups per dynamic rendezvous point.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X870, X690, X590 , X465, X695	70
PIM IPv6 Limits—maximum number of multicast groups per static rendezvous point.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X870, X690, X590, X465, 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, X670-G2, X870, X690, X590 , X465, X695	64
PIM IPv6 Limits—maximum number of secondary addresses per interface.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X870, X690, X590 , X465, X695	70
PIM IPv6 Limits—static rendezvous points.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X870, X690, X590 , X465, X695	32

[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`.



Open Issues, Known Behaviors, and Resolved Issues

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

Open Issues

The following are new open issues for supported features found in ExtremeXOS 30.7.

Table 15: Open Issues, Platform-Specific, and Feature Change Requests (CRs)

Defect Number	Description
ExtremeSwitching X620 Series Switches	
EXOS-26182	With 1G optic in fiber combo port, copper link does not become active when fiber link is removed. Issue does not occur when using 10G optics.
ExtremeSwitching X690 Series Switches	
EXOS-26640	ExtremeXOS 30.7 disables auto active/standby by default when creating BGP auto-peering. To enable auto active/standby, use the following command after BGP auto-peering is created: `delete mlag peer SYS_EASYLAG_OFF`.

Table 15: Open Issues, Platform-Specific, and Feature Change Requests (CRs) (continued)

Defect Number	Description
EXOS-26614	On ExtremeSwitching X695 series switches with more than 1,021 router interfaces and VRRP, IP traffic to the VRRP MAC might be dropped. Workaround: The first time VRRP is enabled on a VLAN, the number of router interfaces must be below 1,022 or above 1,022—not equal. You can view the current number of router interfaces using the command `debug hal show ipv4Intf | include "L3 Interfaces"`.
ExtremeSwitching X670-G2 Series Switches	
EXOS-26651	PTPv2 is not available for ExtremeSwitching X670-G2 series switches.
EVPN	
EXOS-26412	Rebooting an MLAG peer in an EVPN environment causes an excessive length of time for convergence to occur.
EXOS-26729	With LACP in BGP/EVPN VXLAN configurations, missing FDB MACs/ARPs occur from a remote VTEP with the following log message on the remote VTEP: `<Warn:BGP.UpdateMgr.RtNotAdvertLargeUpdtMsg> A route cannot be advertised because it is too large to fit into the maximum allowed size of a BGP UPDATE message. VR = <vr number> Destination address AFI/ SAFI = 4587545 Destination address prefix =<7 32 bit Hex strings forming the BGP route prefix> Destination address prefix length = 216` Workaround: Do not configure a LAG port on more than: • With EVPN and BGP Auto-peering enabled: 75 VLANs • With EVPN and static BGP configuration: 120 VLANs Alternatively, you can avoid these limits using a static port share that does not specify the LACP protocol. Note: The LACP protocol is used if explicitly configured in the sharing commands. The preceding limitations also apply to any MLAGs using an LACP-enabled port share.
FDB	
EXOS-26648	When you configure an explicit time using the `configure time` command, it might cause the switch to experience traffic loss or perform software forwarding instead of hardware forwarding. Workaround: Save, and then reboot, the switch.
VLAN	
EXOS-20311	When changing RTEP tenant VLAN IP address, error messages occur.
EXOS-29579	Unable to ping directly connected hosts on a specific VLAN due to a missing local route in the hardware.

Known Behaviors

The are no known limitations in the ExtremeXOS system architecture that have yet to be resolved for ExtremeXOS 30.7.

Resolved Issues in ExtremeXOS 30.7.3-Patch1-19

The following issues were resolved in ExtremeXOS 30.7.3-Patch1-19. ExtremeXOS 30.7.3-Patch1-19 includes all fixes up to and including ExtremeXOS 11.6.5.3, and earlier, ExtremeXOS 12.0.5, ExtremeXOS 12.1.7, ExtremeXOS 12.2.2-patch1-12, ExtremeXOS 12.3.6, ExtremeXOS 12.4.5, ExtremeXOS 12.5.5, ExtremeXOS 12.6.3, ExtremeXOS 12.6.5, ExtremeXOS 12.7.1, ExtremeXOS 15.1.5, ExtremeXOS 15.2.4, ExtremeXOS 15.3.3, ExtremeXOS 15.4.1, ExtremeXOS 15.5.1, ExtremeXOS 15.5.2, ExtremeXOS 15.6.1, ExtremeXOS 15.6.2, ExtremeXOS 15.7.1, ExtremeXOS 16.1, ExtremeXOS 16.1.2, ExtremeXOS 16.1.3, ExtremeXOS 21.1, ExtremeXOS 22.1, ExtremeXOS 22.2, ExtremeXOS 22.3, ExtremeXOS 22.4, ExtremeXOS 22.5, ExtremeXOS 22.6, ExtremeXOS 30.1, ExtremeXOS 30.2, ExtremeXOS 30.3, ExtremeXOS 30.4, ExtremeXOS 30.5, ExtremeXOS 30.6, and ExtremeXOS 30.7. For information about those fixes, see the release notes for the specific release.

Table 16: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 30.7.3-Patch1-19

Defect	Description
General	
EXOS-30164	After “max-failed-login” + 1 failed login attempts, the first login failure is not recorded and the user gets locked out.
EXOS-30252	Enabling VRRP Fabric Routing shouldn't be allowed on a VRRP group when a group member has priority 255.
EXOS-30767	The functionality **`iparp add proxy`** stopped working after an upgrade in ExtremeXOS 30.2 and later releases.
EXOS-31275	The forwarding database (FDB) doesn't expire after moving the MAC via IPARP packet in one of the MLAG ports.
EXOS-31321	The configuration **`configure elrp-client disable-ports`** is lost after a switch reboot.
EXOS-31331	When multiple actions are configured in a UDP forwarding profile, only the first entry's forwarding actions are carried out, despite the received packet matching multiple entries.
EXOS-31335	The switch reboots due to a process “OSPF” crash.
EXOS-31440	The **`configure system ports notation slot:port`** command returns an error and the port's notation cannot be changed to **`slot:port`**.
EXOS-31449	Multicast Source Discovery Protocol (MSPD) process crashes while processing packets of higher length.
EXOS-31451	A ping fails between tenant VLANs located in PE switches after re-adding a tenant VLAN in a VXLAN configuration.
EXOS-31546	Process forwarding database (FDB) crashes when the switch receives an SNMP walk for MIB extremeFdbPermFdbTable.
EXOS-31559	Include STP-related show commands in the **`show tech`** command when STP is enabled.
EXOS-31561	Edge-Safeguard disables an MLAG port when the MLAG device reboots, with with no signs of a loop.
EXOS-31570	HAL process crashes with signal 6 after continuous port flap.
SummitStack	

Table 16: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 30.7.3-Patch1-19 (continued)

Defect	Description
EXOS-31508	Backup SummitStack slots suddenly reboot after approximately 1,382 days of uptime.
ExtremeSwitching X440-G2 Series Switches	
EXOS-31071	In ExtremeSwitching X440-G2 series switches, `summitCardGetMaxPhyTemp` error messages occur for port 52 in an idle switch.

Resolved Issues in ExtremeXOS 30.7.3

The following issues were resolved in ExtremeXOS 30.7.3. ExtremeXOS 30.7.3 includes all fixes up to and including ExtremeXOS 11.6.5.3, and earlier, ExtremeXOS 12.0.5, ExtremeXOS 12.1.7, ExtremeXOS 12.2.2-patch1-12, ExtremeXOS 12.3.6, ExtremeXOS 12.4.5, ExtremeXOS 12.5.5, ExtremeXOS 12.6.3, ExtremeXOS 12.6.5, ExtremeXOS 12.7.1, ExtremeXOS 15.1.5, ExtremeXOS 15.2.4, ExtremeXOS 15.3.3, ExtremeXOS 15.4.1, ExtremeXOS 15.5.1, ExtremeXOS 15.5.2, ExtremeXOS 15.6.1, ExtremeXOS 15.6.2, ExtremeXOS 15.7.1, ExtremeXOS 16.1, ExtremeXOS 16.1.2, ExtremeXOS 16.1.3, ExtremeXOS 21.1, ExtremeXOS 22.1, ExtremeXOS 22.2, ExtremeXOS 22.3, ExtremeXOS 22.4, ExtremeXOS 22.5, ExtremeXOS 22.6, ExtremeXOS 30.1, ExtremeXOS 30.2, ExtremeXOS 30.3, ExtremeXOS 30.4, ExtremeXOS 30.5, ExtremeXOS 30.6, and ExtremeXOS 30.7. For information about those fixes, see the release notes for the specific release.

Table 17: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 30.7.3

Defect	Description
General	
EXOS-30189	The rtmgr process ends unexpectedly when running the **`disable/enable bgp`** command.
EXOS-30438	OSPF signal 11 crash occurs when the switch tries to generate an External LSA after an LSDB change.
EXOS-30837	The following error is seen when attempting to download an image when the switch real time clock has a time set that is older than the image being installed: `Error: Failed to download image - Certificates verification failed; Image signature validation will be bypassed.`
EXOS-31037	After configuring VXLAN and rebooting the switch, the `ACL feature unavailable` error is seen when trying to apply an ACL.
EXOS-31074	A redistributed EBGP route is not advertised by OSPF after issuing the **`restart ports all`** command.
EXOS-31148	With a next-hop matching condition, ACL refresh is not working when a new matching condition is added to the same.
EXOS-31190	Silent reboots occur in ExtremeSwitching X870, X690, and X590 platform switches.

Table 17: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 30.7.3 (continued)

Defect	Description
EXOS-31195	Multicast packet loss and PIM register drops occur on an RP switch when MPLS is enabled.
EXOS-31241	The Policy process crashes with signal 6 while processing a TCP DNS response packet.
ExtremeSwitching X870 Series Switches	
EXOS-31034	On X870 series switches, fan failure logs are reported even with the RPM being within a 10% tolerance of the maximum allowed range.

Resolved Issues in ExtremeXOS 30.7.2-Patch1-71

The following issues were resolved in ExtremeXOS 30.7.2-Patch1-71. ExtremeXOS 30.7.2-Patch1-71 includes all fixes up to and including ExtremeXOS 11.6.5.3, and earlier, ExtremeXOS 12.0.5, ExtremeXOS 12.1.7, ExtremeXOS 12.2.2-patch1-12, ExtremeXOS 12.3.6, ExtremeXOS 12.4.5, ExtremeXOS 12.5.5, ExtremeXOS 12.6.3, ExtremeXOS 12.6.5, ExtremeXOS 12.7.1, ExtremeXOS 15.1.5, ExtremeXOS 15.2.4, ExtremeXOS 15.3.3, ExtremeXOS 15.4.1, ExtremeXOS 15.5.1, ExtremeXOS 15.5.2, ExtremeXOS 15.6.1, ExtremeXOS 15.6.2, ExtremeXOS 15.7.1, ExtremeXOS 16.1, ExtremeXOS 16.1.2, ExtremeXOS 16.1.3, ExtremeXOS 21.1, ExtremeXOS 22.1, ExtremeXOS 22.2, ExtremeXOS 22.3, ExtremeXOS 22.4, ExtremeXOS 22.5, ExtremeXOS 22.6, ExtremeXOS 30.1, ExtremeXOS 30.2, ExtremeXOS 30.3, ExtremeXOS 30.4, ExtremeXOS 30.5, ExtremeXOS 30.6, and ExtremeXOS 30.7. For information about those fixes, see the release notes for the specific release.

Table 18: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 30.7.2-Patch1-71

Defect	Description
General	
EXOS-30181	SNMP query on pethPsePortIndex is returning both slot and port information instead of just port value.
EXOS-30203	Enabling netlogin on a port in the default VLAN does not move that port to the netlogin-configured VLAN.
EXOS-30241	Reversed next-hop IPv4 address is advertised when BGP exports routes using export-policy.
EXOS-30242	SNMP query on extremeFanStatusTable returns extra incorrect entries.
EXOS-30281	BGP not established in the user VR if another BGP instance is running on VRF type VR.
EXOS-30556	SSH key, while not stored in EEPROM on a newly added slot, gets lost on switch reboot.
EXOS-30680	ExtremeXOS runs the wrong security profile on re-authentication.
SummitStack	
EXOS-30222	At random times, port partition-template configuration is lost after several failovers.

Table 18: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 30.7.2-Patch1-71 (continued)

Defect	Description
EXOS-30427	In a SummitStack with mirror source port in the "non-master" node, a loop occurs on the loopback port when running ELRP on the mirror source port.
EXOS-30567	In a SummitStack, a memory leak is observed on the backup node HAL process when PSE initialization fails.
EXOS-30786	On a reboot of a stack with scaled configuration, the "Backup" node fails to sync with the "Master" node due to a fixed timeout of 500 seconds.

Resolved Issues in ExtremeXOS 30.7.2-Patch1-58

The following issues were resolved in ExtremeXOS 30.7.2-Patch1-58. ExtremeXOS 30.7.2-Patch1-58 includes all fixes up to and including ExtremeXOS 11.6.5.3, and earlier, ExtremeXOS 12.0.5, ExtremeXOS 12.1.7, ExtremeXOS 12.2.2-patch1-12, ExtremeXOS 12.3.6, ExtremeXOS 12.4.5, ExtremeXOS 12.5.5, ExtremeXOS 12.6.3, ExtremeXOS 12.6.5, ExtremeXOS 12.7.1, ExtremeXOS 15.1.5, ExtremeXOS 15.2.4, ExtremeXOS 15.3.3, ExtremeXOS 15.4.1, ExtremeXOS 15.5.1, ExtremeXOS 15.5.2, ExtremeXOS 15.6.1, ExtremeXOS 15.6.2, ExtremeXOS 15.7.1, ExtremeXOS 16.1, ExtremeXOS 16.1.2, ExtremeXOS 16.1.3, ExtremeXOS 21.1, ExtremeXOS 22.1, ExtremeXOS 22.2, ExtremeXOS 22.3, ExtremeXOS 22.4, ExtremeXOS 22.5, ExtremeXOS 22.6, ExtremeXOS 30.1, ExtremeXOS 30.2, ExtremeXOS 30.3, ExtremeXOS 30.4, ExtremeXOS 30.5, ExtremeXOS 30.6, and ExtremeXOS 30.7. For information about those fixes, see the release notes for the specific release.

Table 19: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 30.7.2-Patch1-58

Defect	Description
General	
EXOS-29353	Display the debug packet capture status under the **`show tech-support`** command.
EXOS-29579	Unable to ping directly connected hosts on a specific VLAN due to a missing local route in the hardware.
EXOS-29730	Switch doesn't forward the broadcast/ARP packet after ZTP installs an ACL to lift the DHCP packet.
EXOS-29791	Unable to configure a /24 subnet IP address when a /32 loopback address is already present.
EXOS-29862	SSH connection refused to connect after stack failover.
EXOS-29866	Unable to change the partition in ports 49, 50, 101, and 102 if sharing is enabled on any of the adjacent ports (for example, ports 51, 52, 103, and 104).
EXOS-29892	Unable to retrieve the slot description via SNMP.
EXOS-29924	The switch doesn't ask for the correct password again when a password mismatch happens while the created account is in enhanced security mode.
EXOS-29979	VPLS/VPWS Improper ARP handling.

Table 19: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 30.7.2-Patch1-58 (continued)

Defect	Description
EXOS-30031	DHCP offer and acknowledgement packets are broadcast on all sub-VLANs when the switch acts as a relay agent.
EXOS-30044	Unconfigure IPv4 address using VLAN ID is not working.
EXOS-30050	eVPN: LTEP IP and reversed LTEP IP added to BGP as network.
EXOS-30068	The **vlan** keyword is missing in the configuration display for VLANs containing IPv6 addresses.
EXOS-30102	Fix for vulnerability mentioned in CVE-2021-33909.
EXOS-30114	Traffic loss for more than 5 seconds observed after primary link failure with **ospfv3 spf-hold-time 0** configuration.
EXOS-30123	Need support to turn on NTP from VRF-type VR context to have the same behavior as ExtremeXOS 30.2.
Extreme Switching X670-G2 Series Switches	
EXOS-29773	VXLAN: Tunnel with remote endpoint and local endpoint is operationally down for unicast.
Extreme Switching X690 Series Switches	
EXOS-29423	With port a partition template of 4x100G applied on the switch, ports 49-53 are occasionally displayed in "R" state instead of in "NP" state.
Extreme Switching X695 Series Switches	
EXOS-29959	The **show configuration** command does not display the speed setting of 100G-capable ports.
SummitStack	
EXOS-30025	The CLI session in SummitStack gets locked while saving the configuration if **save configuration as-script <filename>** is previously executed in the same stack prior to the backup/standby nodes boot up.

Resolved Issues in ExtremeXOS 30.7.2-Patch1-33

The following issues were resolved in ExtremeXOS 30.7.2-Patch1-33. ExtremeXOS 30.7.2-Patch1-33 includes all fixes up to and including ExtremeXOS 11.6.5.3, and earlier, ExtremeXOS 12.0.5, ExtremeXOS 12.1.7, ExtremeXOS 12.2.2-patch1-12, ExtremeXOS 12.3.6, ExtremeXOS 12.4.5, ExtremeXOS 12.5.5, ExtremeXOS 12.6.3, ExtremeXOS 12.6.5, ExtremeXOS 12.7.1, ExtremeXOS 15.1.5, ExtremeXOS 15.2.4, ExtremeXOS 15.3.3, ExtremeXOS 15.4.1, ExtremeXOS 15.5.1, ExtremeXOS 15.5.2, ExtremeXOS 15.6.1, ExtremeXOS 15.6.2, ExtremeXOS 15.7.1, ExtremeXOS 16.1, ExtremeXOS 16.1.2, ExtremeXOS 16.1.3, ExtremeXOS 21.1, ExtremeXOS 22.1, ExtremeXOS 22.2, ExtremeXOS 22.3, ExtremeXOS 22.4, ExtremeXOS 22.5, ExtremeXOS 22.6, ExtremeXOS 30.1, ExtremeXOS 30.2, ExtremeXOS 30.3,

ExtremeXOS 30.4, ExtremeXOS 30.5, ExtremeXOS 30.6, and ExtremeXOS 30.7. For information about those fixes, see the release notes for the specific release.

Table 20: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 30.7.2-Patch1-33

Defect	Description
General	
EXOS-28961	An authentication failed log appears for the Network login 802.1x user, even when there is no EAPOL response from the client.
EXOS-29431	On upgrading from ExtremeXOS 30.2 to an ExtremeXOS 30.3 or later release, the IP security module removes configuration after violation-none.
EXOS-29486	If nodealias and netlogin are enabled on the same port, then the nodealias entry will not be created for a client unless the client sends a packet destined for the switch CPU.
EXOS-29508	L3VPN routes are not installed if VPN VRF is configured after the BGP neighbor.
EXOS-29543	Introduce a CLI to the **`unconfigure dhcp-binding storage filename`** command.
EXOS-29764	Netlogin authentication fails when VLAN is statically created but the dynamic VLAN creation request is received from a RADIUS accept packet.
EXOS-29821	RTMGR process crashed with signal 11 when an IPv6 tunnel packet is received despite the switch not having tunneling configuration.
Extended Edge Switching	
EXOS-29450	The VPEX process ends unexpectedly right after the Controlling Bridge (CB) boot up if the loaded configuration is different from the saved configuration.
EXOS-29826	In a VPEX environment, the HAL process ends unexpectedly on a reboot of the Controlling Cridge (CB).
EXOS-29827	In a VPEX MLAG Multiple Ring topology, when **`reboot all`** is run from one of the CBs, rings are stuck in the "Topology: Ring (Severed) - Formation Disabled" state.
ExtremeCloud IQ	
EXOS-29833	After disabling IQ Agent, the switch is continuously trying to establish a connection with ExtremeCloud IQ when it is not reachable.
VXLAN	
EXOS-29531	VXLAN error messages are observed and a port is not added to hardware table.

Resolved Issues in ExtremeXOS 30.7.2-Patch1-20

The following issues were resolved in ExtremeXOS 30.7.2-Patch1-20. ExtremeXOS 30.7.2-Patch1-20 includes all fixes up to and including ExtremeXOS 11.6.5.3, and earlier, ExtremeXOS 12.0.5, ExtremeXOS 12.1.7, ExtremeXOS 12.2.2-patch1-12, ExtremeXOS 12.3.6, ExtremeXOS 12.4.5, ExtremeXOS 12.5.5, ExtremeXOS 12.6.3, ExtremeXOS 12.6.5, ExtremeXOS 12.7.1, ExtremeXOS 15.1.5, ExtremeXOS 15.2.4, ExtremeXOS 15.3.3, ExtremeXOS 15.4.1, ExtremeXOS 15.5.1, ExtremeXOS 15.5.2, ExtremeXOS 15.6.1, ExtremeXOS 15.6.2, ExtremeXOS 15.7.1, ExtremeXOS 16.1, ExtremeXOS 16.1.2, ExtremeXOS 16.1.3,

ExtremeXOS 21.1, ExtremeXOS 22.1, ExtremeXOS 22.2, ExtremeXOS 22.3, ExtremeXOS 22.4, ExtremeXOS 22.5, ExtremeXOS 22.6, ExtremeXOS 30.1, ExtremeXOS 30.2, ExtremeXOS 30.3, ExtremeXOS 30.4, ExtremeXOS 30.5, ExtremeXOS 30.6, and ExtremeXOS 30.7. For information about those fixes, see the release notes for the specific release.

Table 21: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 30.7.2-Patch1-20

Defect	Description
General	
EXOS-28558	Multicast traffic loss seen in VPEX setup after a reboot of an extended slot.
EXOS-28737	IPv6 Neighbor discovery fails intermittently on MLAG peer.
EXOS-28891	When the "Extreme Entrasys entity sensor MIB" is polled, incorrect Tx/Rx power threshold values are returned.
EXOS-29106	Default route shows "Unfeasible" flag after IBGP adjacency flap of peer switch when multipath is configured.
EXOS-29134	VPEX ring not detected due to missing ECID in extended slot after a reboot of the controlling bridge.
EXOS-29208	The switch does not skip the lines starting with "#" in the `.lst` files.
EXOS-29235	cliMaster process consumes high CPU after disabling BFD and terminating the SSH session running BFD statistics.
EXOS-29283	Multicast traffic duplication observed in VPEX-MLAG setup after link flap of ports in VPLAG.
EXOS-29284	L2 traffic gets flooded in MLAG due to a miss in FDB checkpointing between MLAG peers.
EXOS-29298	Multicast traffic loss seen in VPEX setup after a reboot of an extended slot.
EXOS-29308	Egress vlan statistics is not fetching counters for port numbers greater than 64.
EXOS-29379	BGP flag is not set correctly in the IPv6 BGP table after flapping the port on the peer switch.
EXOS-29380	VPEX ring stuck in Severed state after BPE reboot due to LACP aggregation failure on the cascade port.
EXOS-29418	Traffic destined to the subnet IP is broadcast on all the ports present in the destination VLAN.
ExtremeSwitching X465	
EXOS-29381	Perpetual PoE does not work with Igor PD.
ExtremeSwitching X695	
EXOS-29295	When optics.xmod is installed on an ExtremeSwitching X695 series switch, an error message is displayed due to a particular missing file.
SummitStack	
EXOS-27666	In a SummitStack, all of the FAN serial numbers are not shown under the **`show fan`** command.
EXOS-29179	The **`show fan`** command output is not aligned when executed in a backup node.

Table 21: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 30.7.2-Patch1-20 (continued)

Defect	Description
EXOS-29181	Slot reboot is occurs when a fan is removed from the SummitStack.
EXOS-29182	In SummitStacks, there needs to be support for the active monitoring of fan status/failures.
EXOS-29259	The backup slot is never in sync when the diagnostics command is started on a stack port during slot reboot.

Resolved Issues in ExtremeXOS 30.7.2

The following issues were resolved in ExtremeXOS 30.7.2. ExtremeXOS 30.7.2 includes all fixes up to and including ExtremeXOS 11.6.5.3, and earlier, ExtremeXOS 12.0.5, ExtremeXOS 12.1.7, ExtremeXOS 12.2.2-patch1-12, ExtremeXOS 12.3.6, ExtremeXOS 12.4.5, ExtremeXOS 12.5.5, ExtremeXOS 12.6.3, ExtremeXOS 12.6.5, ExtremeXOS 12.7.1, ExtremeXOS 15.1.5, ExtremeXOS 15.2.4, ExtremeXOS 15.3.3, ExtremeXOS 15.4.1, ExtremeXOS 15.5.1, ExtremeXOS 15.5.2, ExtremeXOS 15.6.1, ExtremeXOS 15.6.2, ExtremeXOS 15.7.1, ExtremeXOS 16.1, ExtremeXOS 16.1.2, ExtremeXOS 16.1.3, ExtremeXOS 21.1, ExtremeXOS 22.1, ExtremeXOS 22.2, ExtremeXOS 22.3, ExtremeXOS 22.4, ExtremeXOS 22.5, ExtremeXOS 22.6, ExtremeXOS 30.1, ExtremeXOS 30.2, ExtremeXOS 30.3, ExtremeXOS 30.4, ExtremeXOS 30.5, ExtremeXOS 30.6, and ExtremeXOS 30.7. For information about those fixes, see the release notes for the specific release.

Table 22: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 30.7.2

Defect	Description
General	
EXOS-28538	With MVRP enabled on LAG ports, MRP process ends unexpectedly when executing the **`show mvrp tag`** command.
EXOS-28672	VPEX rings found stuck in 'Formation-disabled' after rebooting BPEs.
EXOS-28678	Redundant port configured through SRP fails to link up after rebooting peer devices.
EXOS-28697	STP process crash observed when configuring auto-edge.
EXOS-28706	The user is required to add the port manually to a VLAN where it is alreadyadded by the netlogin process.
EXOS-28708	Unable to configure an IPv6 address with VLAN tag instead of VLAN name.
EXOS-28731	Disable/enable of MACSec on one port causes traffic loss on another port.
EXOS-28774	GRE Tunnel flag not updated properly for some routes, causing them to not get installed in HAL.
EXOS-28804	BGP neighbors running on VR type vpn-vrf or vrf are not getting established.
EXOS-28839	The default timezone configuration is not present in **`show configuration detail`**, resulting in customers being unable to revert any timezone configuration to its default value.

Table 22: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 30.7.2 (continued)

Defect	Description
EXOS-28857	Incorrect routes for a single prefix are installed in HAL due to direct route and BGP route being treated as an ECMP route during route compression.
EXOS-28864	The Syscontact and SysLocation values cannot be negated once configured.
EXOS-28872	Port flap observed when configuring auto 'on' for the first time after a switch reboot.
EXOS-29009	Switch response for REST query takes several minutes when the switch has scaled configuration of VLAN.
EXOS-29016	When adding a node in a stack, a nodealias process signal 11 crash is observed.
ExtremeSwitching X435	
EXOS-28882	The default VR name is not showing in syslog configuration.

Resolved Issues in ExtremeXOS 30.7.1-Patch1-103

The following issues were resolved in ExtremeXOS 30.7.1-Patch1-103. ExtremeXOS 30.7.1-Patch1-103 includes all fixes up to and including ExtremeXOS 11.6.5.3, and earlier, ExtremeXOS 12.0.5, ExtremeXOS 12.1.7, ExtremeXOS 12.2.2-patch1-12, ExtremeXOS 12.3.6, ExtremeXOS 12.4.5, ExtremeXOS 12.5.5, ExtremeXOS 12.6.3, ExtremeXOS 12.6.5, ExtremeXOS 12.7.1, ExtremeXOS 15.1.5, ExtremeXOS 15.2.4, ExtremeXOS 15.3.3, ExtremeXOS 15.4.1, ExtremeXOS 15.5.1, ExtremeXOS 15.5.2, ExtremeXOS 15.6.1, ExtremeXOS 15.6.2, ExtremeXOS 15.7.1, ExtremeXOS 16.1, ExtremeXOS 16.1.2, ExtremeXOS 16.1.3, ExtremeXOS 21.1, ExtremeXOS 22.1, ExtremeXOS 22.2, ExtremeXOS 22.3, ExtremeXOS 22.4, ExtremeXOS 22.5, ExtremeXOS 22.6, ExtremeXOS 30.1, ExtremeXOS 30.2, ExtremeXOS 30.3, ExtremeXOS 30.4, ExtremeXOS 30.5, ExtremeXOS 30.6, and ExtremeXOS 30.7. For information about those fixes, see the release notes for the specific release.

Table 23: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 30.7.1-Patch1-103

Defect	Description
General	
EXOS-28366	Set the default VPEX IPMC replication mode to *controlling-bridge*.
EXOS-28146	The "Save configuration" button does not work in the Chalet web application.
EXOS-28230	Unable to disable the port that was already disabled by STP by running **bpdu-restrict**.
EXOS-28192	HAL process ends unexpectedly when there is frequent link flap in the Software Redundant Port (SRP).
EXOS-28293	OnePolicy access-list is not accepted if the name starts with a number.
EXOS-27960	The Inter Switch Communication (ISC) port is removed from the Fabric Attach (FA) VLANs when the dynamic FA assignment is deleted.

Table 23: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 30.7.1-Patch1-103 (continued)

Defect	Description
EXOS-27961	RTMGR process crashed with signal 11 while routes are deleted/added on **`disable/enable ospf`** on peer switch.
EXOS-27110	Kernel crash observed when IP defragmentation fails.
EXOS-28023	Internal sever error observed in VPEX switch when fetching component details through *`openconfig`*.
EXOS-27963	Long delay for directly attached BGP Neighbors to come into established state after reboot.
EXOS-28086	L2VLAN DHCP packets are forwarded by the switch when discover packets are received on subvlan and L2VLAN at the same time.
EXOS-27853	Memory depleted at the kernel level due to bootprelay packet processing.
EXOS-28310	Routes redistribution from OSPF to RIP creates issues when removing NLRI from Routing Policy.
SummitStack	
EXOS-28204	Short loop observed in the sharing link when performing a node failover in the stack.
EXOS-28224	With a newly formed stack, LLDP is disabled for all the slot ports except the primary slot.
EXOS-28043	HAL process spikes more than 50% when backup slot is powered down.

Resolved Issues in ExtremeXOS 30.7.1-Patch1-86

The following issues were resolved in ExtremeXOS 30.7.1-Patch1-86. ExtremeXOS 30.7.1-Patch1-86 includes all fixes up to and including ExtremeXOS 11.6.5.3, and earlier, ExtremeXOS 12.0.5, ExtremeXOS 12.1.7, ExtremeXOS 12.2.2-patch1-12, ExtremeXOS 12.3.6, ExtremeXOS 12.4.5, ExtremeXOS 12.5.5, ExtremeXOS 12.6.3, ExtremeXOS 12.6.5, ExtremeXOS 12.7.1, ExtremeXOS 15.1.5, ExtremeXOS 15.2.4, ExtremeXOS 15.3.3, ExtremeXOS 15.4.1, ExtremeXOS 15.5.1, ExtremeXOS 15.5.2, ExtremeXOS 15.6.1, ExtremeXOS 15.6.2, ExtremeXOS 15.7.1, ExtremeXOS 16.1, ExtremeXOS 16.1.2, ExtremeXOS 16.1.3, ExtremeXOS 21.1, ExtremeXOS 22.1, ExtremeXOS 22.2, ExtremeXOS 22.3, ExtremeXOS 22.4, ExtremeXOS 22.5, ExtremeXOS 22.6, ExtremeXOS 30.1, ExtremeXOS 30.2, ExtremeXOS 30.3, ExtremeXOS 30.4, ExtremeXOS 30.5, ExtremeXOS 30.6, and ExtremeXOS 30.7. For information about those fixes, see the release notes for the specific release.

Table 24: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 30.7.1-Patch1-86

Defect	Description
General	
EXOS-27856	Adds support for `disable/enable iqagent`.
EXOS-27857	`disable iqagent` configuration is not reflected in `show configuration` output.
EXOS-27564	When configuring LAG on extended ports, short loop is detected in switch.

Table 24: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 30.7.1-Patch1-86 (continued)

Defect	Description
EXOS-27919	In VPEX one armed MLAG ring topology, multicast traffic drop observed after link flap of native cascade port in controlling bridge.
EXOS-27855	Irrelevant log messages from VLAN module <Info:vlan.mac.gMacArrayDump> is seen after switch reboot.
EXOS-27928	MLAG up/down messages are not displayed by default in log.
EXOS-27998	Identity-management entries were not removed after running `clear netlogin state port`.
EXOS-27215	When the mgmt port is down with IQAgent, `enable dhcp vlan mgmt` log message prints every 2 minutes.
EXOS-26928	DHCP broadcast packets are flooded through the client port in non-policy netlogin mode when broadcast flooding is disabled on ports.
EXOS-27867	Update `show fdb` output to mention Age displayed as 0 for hardware aging platforms.
EXOS-27704	EXSH process crashed with signal 6 on issuing double TAB after alias name.
EXOS-27603	Non-partitioned 40G ports in backup/standby slots are showing incorrect port status after stack reboots.
EXOS-27719	After running `port statistics`-related commands, the CLI stops responding.
EXOS-19439	Error message "Failed to set fec config" observed during switch reboot or stack failover with 4x10G partition configuration.
EXOS-27810	VPEX topology shows Severed state when powering on/off all BPEs at the same time.
EXOS-27742	When disabling one of the ring ports and rebooting an extended slot in VPEX ring, all ports in extended slots remain in 'Ready' state.
EXOS-27469	In VPEX MLAG topology, the nodealias process ends unexpectedly when SNMP polling was run to fetch nodealias information from extended slots.
EXOS-27971	ICMP packets are not egressing after failover.
EXOS-27883	CLI process consumes more CPU when `enable debug-mode` command is executed and the session gets timed out.
EXOS-27508	Authentication for local user fails for SSH connection. Radius server is unreachable.
EXOS-27373	HAL error message seen when changing auto-polarity on a port.
EXOS-27578	DHCP/BOOTP relay packets forwarded to the wrong VLAN, causing connectivity issues for PXE client.
EXOS-27477	STP PDU not sent out immediately on `Admin enable` operation if edge port is configured with edge safeguard and BPDU restrict is enabled.
EXOS-27957	RTMGR process crashed with signal 6 due to stale BGP entries.
EXOS-27716	ELRP process ends unexpectedly after receiving an invalid packet with ELRP destination MAC address.

Table 24: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 30.7.1-Patch1-86 (continued)

Defect	Description
EXOS-27557	`show fabric attach elements` output does not display all attached elements if the number of elements is greater than 25.
ExtremeSwitching X460-G2 Series Switches	
EXOS-27661	Two-Way Active Measurement Protocol (TWAMP) feature is not working as expected.
EXOS-27745	PTPv2 mean path delay metric is not displayed correctly.
EXOS-27668	High HAL utilization observed with Network Timing license.
ExtremeSwitching X770 Series Switches	
EXOS-27828	On upgrade to 22.7 and later releases, thttpd and related processes are stuck in the load configuration state if there is an excess amount of VLAN configuration.
SummitStack	
EXOS-27999	ZTPstack cannot successfully configure a new switch to join the stack if the currently active Stack MAC address is based on the node that is not currently present in stack.

Resolved Issues in ExtremeXOS 30.7.1-Patch1-54

The following issues were resolved in ExtremeXOS 30.7.1-Patch1-54. ExtremeXOS 30.7.1-Patch1-54 includes all fixes up to and including ExtremeXOS 11.6.5.3, and earlier, ExtremeXOS 12.0.5, ExtremeXOS 12.1.7, ExtremeXOS 12.2.2-patch1-12, ExtremeXOS 12.3.6, ExtremeXOS 12.4.5, ExtremeXOS 12.5.5, ExtremeXOS 12.6.3, ExtremeXOS 12.6.5, ExtremeXOS 12.7.1, ExtremeXOS 15.1.5, ExtremeXOS 15.2.4, ExtremeXOS 15.3.3, ExtremeXOS 15.4.1, ExtremeXOS 15.5.1, ExtremeXOS 15.5.2, ExtremeXOS 15.6.1, ExtremeXOS 15.6.2, ExtremeXOS 15.7.1, ExtremeXOS 16.1, ExtremeXOS 16.1.2, ExtremeXOS 16.1.3, ExtremeXOS 21.1, ExtremeXOS 22.1, ExtremeXOS 22.2, ExtremeXOS 22.3, ExtremeXOS 22.4, ExtremeXOS 22.5, ExtremeXOS 22.6, ExtremeXOS 30.1, ExtremeXOS 30.2, ExtremeXOS 30.3, ExtremeXOS 30.4, ExtremeXOS 30.5, ExtremeXOS 30.6, and ExtremeXOS 30.7. For information about those fixes, see the release notes for the specific release.

Table 25: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 30.7.1-Patch1-54

Defect	Description
General	
EXOS-27157	HAL process ends unexpectedly on master node of SummitStack if stacking-related show commands are run when some other stacking slot is being unconfigured.
EXOS-26783	The command `disable stpd s0` appears twice in the configuration if STP is disabled and if the default ST[D mode of s0 domain is changed.

Table 25: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 30.7.1-Patch1-54 (continued)

Defect	Description
EXOS-27088	SSH does not work with weaker public key-algorithm ssh-dss.
EXOS-27541	The process exsshd might end unexpectedly when closing an SSH connection.
EXOS-27202	ExtremeXOS adds a prefix of csr- to the common name in the Certificate Sign Request (CSR).
EXOS-27226	During VPLS fallback scenario, convergence happens within a second, which causes communication loss between CE devices.
EXOS-27341	If a non-tenant VMAN is added to the same port as CEP, then you are not able to ping the tenant VLAN IP on a VTEP.
EXOS-27285	Default-originate routes stop being transmitted over BGP/OSPF when BGP redistribute cost is high.
EXOS-26378	FDB is not learned on network VLANS when L2VPN sharing is not enabled on PE switches.
EXOS-27152	When there are flaps on MPLS cloud, VPLS FDB is leaked on network VLAN.
EXOS-27068	After a reboot, switch fails to load VLAN configuration on a port with remote mirroring configured.
EXOS-27044	Invalid entity warnings appear in log after ExtremeCloud request.
EXOS-27427	JSON request for a configuration change or save (admin privilege) fails for RADIUS-authenticated users.
EXOS-26430	Fabric Attach uplink is not added/removed in static/dynamic VLAN based on NSI status.
EXOS-27390	Installation of ACL rule entries containing multiple conditions of the same match type should be blocked.
EXOS-27041	TTL match condition is not updated during ACL smart refresh.
EXOS-27258	The `show configuration difference` command output incorrectly shows differences when the booted and the running configuration are identical.
EXOS-27268	On Extended Edge Switching topologies, pibAsicUpdOneDot1brPortEgressReplication' error messages appear when upgrading to ExtremeXOS 30.7.
EXOS-27126	VPEX process ends unexpectedly after unconfiguring and reconfiguring the extended slot (V300).
EXOS-27169	If switch is configured with slot:port notation, cable diagnostic script returns errors.
EXOS-27011	The process cliMaster ends unexpectedly when any show command is run with grep option and log target session is enabled.
EXOS-27098	In the output of the `show stpd` command, the operational edge status is not set to "true" for ports linked up at non-default speeds, such as 100M or 10M.
EXOS-27006	Nettools process ends unexpectedly when receiving DHCP packets with invalid DNS (0.0.0.0).

Table 25: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 30.7.1-Patch1-54 (continued)

Defect	Description
EXOS-27085	Inter-VLAN loops are not detected by ELRP on NetLogin VLANs when the port is set to MAC-based VLAN.
EXOS-27270	HAL process ends unexpectedly when ExtremeXOS retries detecting unsupported or third-party optics.
EXOS-26734	With loop present, FDB process ends unexpectedly after enabling ELRP hardware-assist feature.
SummitStack	
EXOS-26963	Stacks do not come up successfully with default license if ExtremeSwitching X870/X695 series switches are mixed with other platform switches having master-capability set to on.
EXOS-27386	On SummitStacks, STP memory leak occurs on backup node for each MLAG port flap on peer switch.
ExtremeSwitching X435 Series Switches	
EXOS-27082	ExtremeSwitching X435-8p switches remain in boot loop due to FDB process ending unexpectedly when upgrading to ExtremeXOS 30.7.1.1.

Resolved Issues in ExtremeXOS 30.7.1-Patch1-23

The following issues were resolved in ExtremeXOS 30.7.1-Patch1-23. ExtremeXOS 30.7.1-Patch1-23 includes all fixes up to and including ExtremeXOS 11.6.5.3, and earlier, ExtremeXOS 12.0.5, ExtremeXOS 12.1.7, ExtremeXOS 12.2.2-patch1-12, ExtremeXOS 12.3.6, ExtremeXOS 12.4.5, ExtremeXOS 12.5.5, ExtremeXOS 12.6.3, ExtremeXOS 12.6.5, ExtremeXOS 12.7.1, ExtremeXOS 15.1.5, ExtremeXOS 15.2.4, ExtremeXOS 15.3.3, ExtremeXOS 15.4.1, ExtremeXOS 15.5.1, ExtremeXOS 15.5.2, ExtremeXOS 15.6.1, ExtremeXOS 15.6.2, ExtremeXOS 15.7.1, ExtremeXOS 16.1, ExtremeXOS 16.1.2, ExtremeXOS 16.1.3, ExtremeXOS 21.1, ExtremeXOS 22.1, ExtremeXOS 22.2, ExtremeXOS 22.3, ExtremeXOS 22.4, ExtremeXOS 22.5, ExtremeXOS 22.6, ExtremeXOS 30.1, ExtremeXOS 30.2, ExtremeXOS 30.3, ExtremeXOS 30.4, ExtremeXOS 30.5, ExtremeXOS 30.6, and ExtremeXOS 30.7. For information about those fixes, see the release notes for the specific release.

Table 26: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 30.7.1-Patch1-23

Defect Number	Description
General	
EXOS-26944	IQ Agent ends unexpectedly when SNMP is blocked.
EXOS-26445	Need support for image integrity check in ExtremeXOS.
EXOS-27029	IQ Agent version 0.3.11 is not providing the patch information in the "osVersion" object in the association request to ExtremeCloud IQ.
EXOS-26908	DNS packets are not processed on the NetLogin VLAN when an IP address is re-configured, and when a NetLogin web-enabled port is not a member of the NetLogin VLAN.

Table 26: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 30.7.1-Patch1-23 (continued)

Defect Number	Description
EXOS-26816	AnSCP2 client session using the cipher option to transfer files from the switch to an SCP server produces the following error: `Error:can't read "args(<cipher>)": no such element in array`.
EXOS-26901	When you configure an explicit time using the `configure time` command, the switch might experience traffic loss or perform software forwarding instead of hardware forwarding.
EXOS-26953	VPEX process ends unexpectedly when processing checkpoint messages from an MLAG peer with a non-existent slot number.
EXOS-26898	SSH logon fails after repeated SSH logon/logoff attempts.
EXOS-26729	On LACP in BGP/EVPN VXLAN configurations, missing FDB MACs and ARPs occur from a remote VTEP with the following log message on the remote VTEP: `<Warn:BGP.UpdateMgr.RtNotAdvertLargeUpdtMsg> A route can not be advertised because it is too large to fit into the maximum allowed size of a BGP UPDATE message. VR = <vr number> Destination address AFI/ SAFI = 4587545 Destination address prefix =<7 32 bit Hex strings forming the BGP route prefix> Destination address prefix length = 216`
EXOS-26128	ExtremeXOS ignores LLDP PDUs from auth-override (AP-aware) ports.
EXOS-26795	After deleting virtual-link-local configurations, VRRP process ends unexpectedly.
EXOS-26818	Infrequently, after enabling SSH, the process exsshd ends unexpectedly due to EPM timeout.
EXOS-26603	Traffic between hosts using LAG is not hashed on the same port with XOR hash algorithm if the number of sharing ports is not power of 2.
EXOS-26697	Even after enabling a disabled port, ELRP disabled logs are not cleared.
EXOS-10852	When the wrong ARP packets are received on tenant VLANs, the following VXLAN error messages occur: `04/12/2020 18:24:54.76 <Erro:HAL.VNet.Error> Failed to Add Net Port for RTEP:1 RtepAddr:192.168.253.2 LtepAddr:192.168.253.1 portType:2 err Generic Error 04/12/2020 18:24:54.76 <Erro:HAL.VXLAN.Error> Cannot create BUM port in standard mode.`
EXOS-26825	After upgrading to ExtremeXOS 30.1, Identity manager Kerberos snooping stops working.
EXOS-26814	Number of SSH key files in `/usr/local/cfg` and `show config exsshd` are not equal.
EXOS-26815	Infrequently, when enabling SSH, the process exsshd ends unexpectedly due to EPM timeout.
EXOS-26817	If a configuration file saved in an older ExtremeXOS release is used, even after generating fresh key, SSH port 22 is not open.
EXOS-26952	On Extended Edge Switching MLAG topologies, the layer 2 traffic that is hashed to the specific port of VPLAG is dropped.

Table 26: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 30.7.1-Patch1-23 (continued)

Defect Number	Description
SummitStack	
EXOS-26824	When hosts move from a network VLAN to a subscriber VLAN, HAL process ends unexpectedly.
EXOS-20565	When nodes are automatically added or replaced on a stack, the command `show inline-power` **`slot`** *`master_slot`* fails.
ExtremeSwitching X440-G2 Series Switches	
EXOS-24091	On a few ExtremeSwitching X440-G2 series switches, upgrading from any ExtremeXOS 22.x version to ExtremeXOS 30.3, or later, fails due to partition error.
ExtremeSwitching X460-G2 Series Switches	
EXOS-10884	If a bulk number of FDB entries age out at same time, excessive MAC move notifications appear from hardware.

Resolved Issues in ExtremeXOS 30.7

The following issues were resolved in ExtremeXOS 30.7. ExtremeXOS 30.7 includes all fixes up to and including ExtremeXOS 11.6.5.3, and earlier, ExtremeXOS 12.0.5, ExtremeXOS 12.1.7, ExtremeXOS 12.2.2-patch1-12, ExtremeXOS 12.3.6, ExtremeXOS 12.4.5, ExtremeXOS 12.5.5, ExtremeXOS 12.6.3, ExtremeXOS 12.6.5, ExtremeXOS 12.7.1, ExtremeXOS 15.1.5, ExtremeXOS 15.2.4, ExtremeXOS 15.3.3, ExtremeXOS 15.4.1, ExtremeXOS 15.5.1, ExtremeXOS 15.5.2, ExtremeXOS 15.6.1, ExtremeXOS 15.6.2, ExtremeXOS 15.7.1, ExtremeXOS 16.1, ExtremeXOS 16.1.2, ExtremeXOS 16.1.3, ExtremeXOS 21.1, ExtremeXOS 22.1, ExtremeXOS 22.2, ExtremeXOS 22.3, ExtremeXOS 22.4, ExtremeXOS 22.5, ExtremeXOS 22.6, ExtremeXOS 30.1, ExtremeXOS 30.2, ExtremeXOS 30.3, ExtremeXOS 30.4, ExtremeXOS 30.5, and ExtremeXOS 30.6. For information about those fixes, see the release notes for the specific release.

Table 27: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 30.7

Defect Number	Description
General	
EXOS-20534	Extreme Management Center does not pass DNS search suffixes to ExtremeXOS switches.
EXOS-20493	Configuring Simple Loop Protection Protocol (SLPP) guard recovery timeout value as zero using :Extreme Management Center does not set a zero value for timeout on a switch, but rather is ignored and leaves the default value of 60 seconds in place.
EXOS-20230	Combining MLAG and VLAN translation, reachability issues occur.
EXOS-20132	IPv4 adjacency shows resolved when there is network loop and IP forwarding is disabled.
EXOS-20120	Node Alias configuration is not removed after running the command `unconfigure` **`slot`** *`slot no`*.

Table 27: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 30.7 (continued)

Defect Number	Description
EXOS-19972	Image installation takes a little longer for ExtremeXOS 30.6, and the following log message might appear as a result: `<Warn:EPM.Upgrade.State> Upgrade status Installation time may be greater than expected due to a lack of memory resources`.
EXOS-19682	Commands implemented internally using Python script cause memory leaks.
EXOS-19308	On SummitStack, when ports are in software learning mode, FDB is not programmed in hardware on all slots resulting in flooding.
EXOS-19163	With group table is full and when flapping the port, L3 IPMC index resource leak occurs.
EXOS-20608	After unconfiguring PVLAN loop-back, PVLAN port goes down if it contains SX SFP optics and its auto-negotiation is disabled.
EXOS-20520	If the Management VLAN is created using the Fabric Attach server and DHCP packets are relayed through the fabric to the DHCP server, auto provision (ZTP) does not finish.
EXOS-26329	ExtremeXOS should process only supported TLVs and ignore unsupported TLVs in AVB signaling/announce messages.
EXOS-26446	Switch receives IGMPv1 queries from ExtremeXOS IGMP querier configured as IGMPv2.
EXOS-26217	LLDP process crash occurs when IPv6 address is encoded in a TLV.
EXOS-24246	Deprecated ip-option related CLI commands should not appear under `show configuration rtmgr detail`.
EXOS-26429	If MVR is enabled globally on the user virutal-router (VR), but not on the VRF, the process "mcmgr" ends unexpectedly when receiving IGMP report packets.
EXOS-24095	When snmpwalk is done for entity_mib (1.3.6.1.2.1.47.1.1.1.1) and if a QSFP-to-SFP adapter is present in the switch, process devmgr ends unexpectedly.
EXOS-24093	MIB object "IfName" is not sent in Link up/Link down SNMP traps.
EXOS-24084	After an IGMP receiver flaps twice, multicast streams are not forwarded to receivers by PIM-SSM.
EXOS-20516	Convergence takes 6 seconds when port down/up coincides with optics polling interval (once in 300 sec).
EXOS-20429	FDB entries learned on NetLogin-enabled bridge port extender (BPE) ports point to the CPU causing traffic loss.
EXOS-20251	BFD sessions on the Default VLAN go down after enabling hardware-assist BFD,
EXOS-24128	Need to allow RESTCONF GET requests for user-level accounts.
EXOS-24120	When refreshing policy files, process HAL ends unexpectedly with signal 11.
ExtremeSwitching X695 Series Switches	

Table 27: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 30.7 (continued)

Defect Number	Description
EXOS-20029, EXOS-19978	Stacks with IPv6-to-IPv4 or IPv6-in-IPv4 tunnels may experience traffic loss or slowpath if a VLAN with a tunnel has its VLAN tag changed dynamically using the command `configure` **`vlan`** *`vlan_name`* **`tag`** *`new_tag`*.
EXOS-19637	On ExtremeSwitching X695 series switches, with ECMP enabled for the VXLAN overlay network, deleting static overlay routes produces a shadow problem error and traffic is stopped.
EXOS-19532	On ExtremeSwitching X695 series switches, VMAN over VXLAN is not supported.
EXOS-19367	On ExtremeSwitching X695 series switches, the command "show process group" displays CPU utilization of the "Other" group tasks also under the "EXOS" group.
EXOS-19359	On ExtremeSwitching X695 series switches, "Other" group CPU utilization does not appear accurately in the `show process group` command.
ExtremeSwitching X440-G2 Series Switches	
EXOS-19349, EXOS-24065	After rebooting ExtremeSwitching X440G2-12p switches, port-related warning logs appear.
ExtremeSwitching X465 Series Switches	
EXOS-18535	Hot-swapping the fans might result in the appearance of i2c optic error messages.
EXOS-24101	SCP sync fails on backup node when downloading an image.
ExtremeSwitching X590 Series Switches	
EXOS-26209	Continuous multicast entry additions and deletions produce IPMC error messages.
ExtremeSwitching X435 Series Switches	
EXOS-24245	Not able to upgrade ExtremeSwitching X435 series switches through Chalet File App Manager.
EXOS-24237	For ExtremeSwitching X435 series switches, Python errors occur when running `show vid` command.
ACL	
EXOS-24087	Policy with attribute "replace-vlan-id" fails to be installed sometimes and the error message 'No resources for the "replace-vlan-id" option' appears.
Bidirectional Forwarding Detection (BFD)	
EXOS-20096	When switches are rebooted with the loopback port disabled, BFD sessions remain in init state.
EXOS-20533	Hardware-assist BFD session goes down after changing the egress VLAN tag.
Extreme Loop Recovery Protocol (ELRP)	
EXOS-10881	Configuring Extreme Loop Recovery Protocol (ELRP) a very large number of ports results in rejection of the command with the message `Configuration reply is too big`.

Table 27: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 30.7 (continued)

Defect Number	Description
EVPN	
EXOS-19816	When VXLAN service VLAN ports go down, BGP.PolicyMgr.RtNotAdvertNHSameTxPeer warning message appears.
Extended Edge Switching	
EXOS-20472	Extended Edge Switching with MLAG configurations become unstable when NetLogin is configured on bridge port extender (BPE) trusted ports.
EXOS-20471	VPEX process ends unexpectedly with signal 11 due to invalid cascaded port configuration.
EXOS-20419	FDB entries learned on NetLogin-enabled bridge port extender (BPE) ports point to the CPU causing traffic loss.
EXOS-20156	With a large amount of multicast traffic on an Extended Edge Switching ring with controlling bridge (CB) MLAG setup, traffic loss and duplicates occur after rebooting a CB.
EXOS-19715	On V300 bridge port extenders (BPEs), OSPFv3 sessions are flapping with 1G link.
EXOS-26534	In Extended Edge Switching with MLAG topology, bridge port extender (BPE) port is not joining a LAG.
EXOS-24070	On Extended Edge Switching topologies, the output of the `show port description` command displays truncated port numbers of extended slots.
Fabric Attach	
EXOS-20325	The proper behavior of an Fabric Attach (FA) proxy, when connected to a single FA server, having the FA server to transition to FA proxy, and then the original proxy becoming an FA client is not occurring.
EXOS-20113	For Fabric Attach-created dynamic management VLANs, manually disabling DHCP does not work.
EXOS-19674	Static NSI bindings go into the pending state when dynamic binding with identical NSI is removed.
EXOS-19319	On Fabric Attach with MLAG configurations, failover times after switch reboot is slightly increased and needs to be reduced.
EXOS-17727	The command `clear counters` is not clearing fabric attach statistics.
EXOS-16564	If a VLAN in the client is deleted, or if the client is not reachable, the corresponding NSI mappings should timeout at the same time on the MLAG proxy peers, but this is not occurring.
EXOS-20492	Mgmt VLAN information under Fabric Attach gets updated only after receiving second LLDP packet.
EXOS-20302	With an ExtremeSwitching X670-G2 SummitStack acting as a Fabric Attach proxy, you cannot create a VLAN with "v" in the name along with the system VLAN tag number. For example, if the system VLAN is "SYS_VLAN_0200", trying to create a VLAN named "v200" produces an error message stating that the VLAN already exists.

Table 27: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 30.7 (continued)

Defect Number	Description
MLAG	
EXOS-24289	When reassembling the fragmented packets, kernel crashes occur randomly,
EXOS-24130	Need a mechanism to bring up MLAG ports in a staggered manner.
MPLS	
EXOS-24040	With SRP configured on VPLS service VMAN, when a primary or secondary port goes down, the other port is not passing traffic through the tunnel.
Network Login	
EXOS-19000	Authenticated NetLogin user's entries are flushed when new member port is added into a LAG group.
EXOS-24112	LLDP packets are not sent and received after successful NetLogin authentication.
EXOS-24088	With NetLogin multiauth mode configured, MAC users are logged as "Unknown" user during un-authentication.
OSPF	
EXOS-20578	When default routes are installed with IP route compression enabled, traffic loss occurs.
EXOS-26245	OSPF sends same instance of LSA twice in single LS update resulting in traffic loss.
PoE	
EXOS-26118	On SummitStacks with PoE-capable switches, running the `show tech` command causes the PoE process to end unexpectedly.
Policy	
EXOS-20246	With ONEPolicy configured, ARP responds are sent with the incorrect VLAN tag when receiving multicast packets on the inactive VLAN.
STP	
EXOS-26491	In STP, root switch becomes isolated when root bridge goes down.
SummitStack	
EXOS-20349	After enabling VRRP on SummitStacks, source address in ARP packets originated on the Management interface are sent with VRRP Virtual MAC addresses.
EXOS-24094	On SummitStacks, when check pointing CFM messages in backup node, dot1ag process ends unexpectedly at random times.
EXOS-20334	Synchronize stacking command fails to synchronize the stack.
EXOS-10879	In SummitStacks, HAL process spike occurs on master node when standby node power is lost.
VXLAN	

Table 27: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 30.7 (continued)

Defect Number	Description
EXOS-20153	Need EMS or error log message for when multiple VXLAN RTEP nexthops are pointing to the same interface.
EXOS-16574	In the *ExtremeXOS User Guide*, need to add a note regarding limitation with VXLAN overlay routing.