ExtremeXOS Release Notes

Software Version ExtremeXOS 22.7.2-Patch1-3

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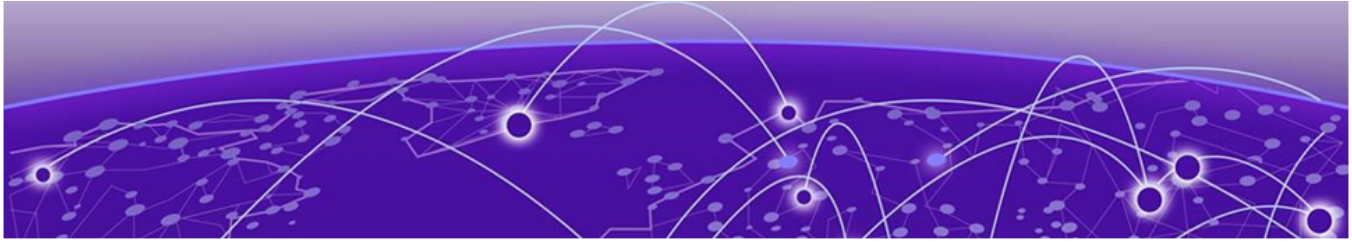

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Preface

This section discusses the conventions used in this guide, ways to provide feedback, additional help, and other Extreme Networks® publications.

Conventions

This section discusses the conventions used in this guide.

Text Conventions

The following tables list text conventions that are used throughout this guide.

Table 1: Notice Icons

Icon	Notice Type	Alerts you to...
	General Notice	Helpful tips and notices for using the product.
	Note	Important features or instructions.
	Caution	Risk of personal injury, system damage, or loss of data.
	Warning	Risk of severe personal injury.
New!	New Content	Displayed next to new content. This is searchable text within the PDF.

Table 2: Text Conventions

Convention	Description
`Screen displays`	This typeface indicates command syntax, or represents information as it appears 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.”

Table 2: Text Conventions (continued)

Convention	Description
[Key] names	Key names are written with brackets, such as **[Return]** 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.

Platform-Dependent Conventions

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

- ExtremeSwitching® switches
- Summit® 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*.

Providing Feedback to Us

Quality is our first concern at Extreme Networks, and we have made every effort to ensure the accuracy and completeness of this document. We are always striving to improve our documentation and help you work better, so we want to hear from you! We welcome all feedback but especially want to know about:

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

If you would like to provide feedback to the Extreme Networks Information Development team, you can do so in two ways:

- Use our short online feedback form at https://www.extremenetworks.com/documentation-feedback/.
- Email us at documentation@extremenetworks.com.

Please 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.

Getting Help

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: 1-800-998-2408 (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 and/or serial numbers for all involved Extreme Networks products
- A description of the failure
- A description of any action(s) already taken to resolve the problem
- A description of your network environment (such as layout, cable type, other relevant environmental information)
- Network load at the time of trouble (if known)
- The device history (for example, if you have returned the device before, or if this is a recurring problem)
- Any related RMA (Return Material Authorization) numbers

Subscribing to Service Notifications

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

1. Go to www.extremenetworks.com/support/service-notification-form.
2. Complete the form with your information (all fields are required).
3. Select the products for which you would like to receive notifications.

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

4. Click **Submit**.

Related Publications

ExtremeXOS Publications

- *ACL Solutions Guide*
- *ExtremeXOS 22.7 Command Reference Guide*
- *ExtremeXOS 22.7 EMS Messages Catalog*
- *ExtremeXOS 22.7 Feature License Requirements*
- *ExtremeXOS 22.7 User Guide*
- *ExtremeXOS Quick Guide*
- *ExtremeXOS Legacy CLI Quick Reference Guide*
- *ExtremeXOS Release Notes*
- *Extreme Hardware/Software Compatibility and Recommendation Matrices*
- *Switch Configuration with Chalet for ExtremeXOS 21.x and Later*
- *Using AVB with Extreme Switches*

Extreme Management Center Publications

- *ISW-Series Managed Industrial Ethernet SwitchExtreme Management Center User Guide*

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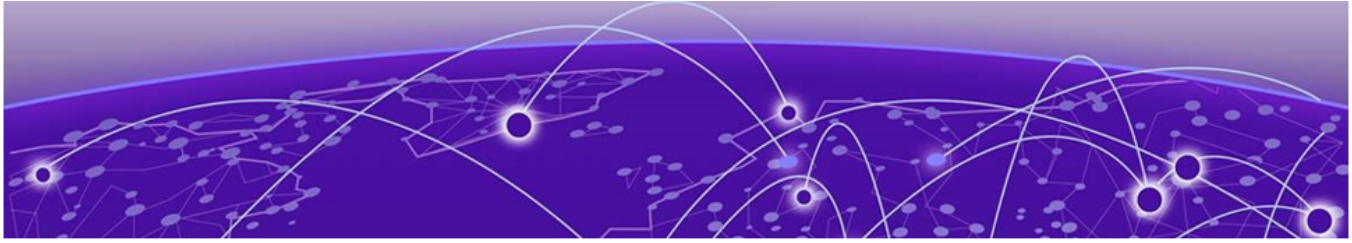

Overview

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These release notes document ExtremeXOS 22.7.2-Patch1-3, which resolves software deficiencies.

Security Information

The following section covers important security information for ExtremeXOS 22.7.2-Patch1-3.

OpenSSL Version

ExtremeXOS 22.7.2-Patch1-3 uses FIPS fips-ecp-2.0.16.

Linux Kernel

ExtremeXOS 22.7.2-Patch1-3 uses Linux Kernel 3.18.

Upgrading ExtremeXOS

While ExtremeXOS 22.7.2-Patch1-3 supports all features on all applicable platforms as indicated in these release notes, upgrading to ExtremeXOS 22.7.2-Patch1-3 from releases earlier than 22.2 may involve performance trade-offs of some feature on certain platforms. For information about feature- and platform-specific issues, see Open Issues on page 67 and Known Behaviors on page 68. For

information about recommended releases for specific platforms, see http://www.extremenetworks.com/extreme-hardwaresoftware-compatibility-recommendation-matrices/software-release-recommendations/.

For instructions about upgrading ExtremeXOS software, see "Software Upgrade and Boot Options" in the *ExtremeXOS 22.7 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.

Default ExtremeXOS® Settings

Table 3 shows the default settings for ExtremeXOS 22.7.2-Patch1-3.

Table 3: Default ExtremeXOS Settings

ExtremeXOSFeature	ExtremeXOS 22.7.2-Patch1-3 Settings
Account lockout	After 3 consecutive login failures, account is locked for 5 minutes. [a]
AVB	Disabled.
BGP	Disabled.
BOOTP Relay	Disabled.
CDP	Enabled.
Configuration auto save	Disabled.
Clear-flow	Disabled.
Diagnostics	Admin-level privileges required to show diagnostics. [a]
DHCP	Disabled.
IPFIX	Disabled.
EAPS	Disabled.
EDP	Enabled.
ELRP	Disabled.
ESRP	Disabled.
Extended Edge Switching (VPEX)	Disabled.
Extended Edge Switching ring re-balancing	Disabled.
Identity Management	Disabled.
IGMP	Enabled, set to IGMPv2 compatibility mode.
IGMP Snooping	Enabled.

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

Table 3: Default ExtremeXOS Settings (continued)

ExtremeXOSFeature	ExtremeXOS 22.7.2-Patch1-3 Settings
IP Route Compression	Enabled.
ISIS	Disabled.
Log	Admin level privileges required to show log. [a]
Logging memory buffer	Generate an event when the logging memory buffer exceeds 90% of capacity. [a]
MLD	Disabled.
MLD Snooping	Disabled.
MPLS	Disabled.
MSRP	Disabled.
MSTP	Enabled.
NetLogin	All types of authentication are disabled.
NTP	Disabled.
ONEPolicy	Disabled.
OpenFlow	Disabled.
OSPF	Disabled.
OVSDB	Disabled.
Passwords	Plain text password entry not allowed. [a]
PIM	Disabled.
PIM Snooping	Disabled.
RADIUS	Disabled for both switch management and network login.
RIP	Disabled.
RMON	Disabled. However, even in the disabled state, the switch responds to RMON queries and sets for alarms and events.
sFlow	Disabled.
SNMP server	Disabled. [a]
SSH	Disabled.
Stacking	Disabled.
STP	Enabled.
Syslog	Disabled.
TACACS	Disabled.
Telnet	Disabled. [a]
VPLS	All newly created VPLS instances are enabled.
Watchdog	Enabled.
Web HTTP server	Disabled. [a]

New and Corrected Features in ExtremeXOS 22.7.2

This section lists the new and corrected features supported in the ExtremeXOS 22.7.2 software:

configure mlag ports reload-interval

`configure mlag ports` **`reload-interval`** [**`none`** | *`reload_interval_msec`*]

Description

Configures a staggered bringing up of ports.

Syntax Description

`reload-interval`	Specifies configuring the time between bringing up individual MLAG ports when reload delay is enabled.
`none`	Specifies not waiting between bringing up individual MLAG ports (default).
`reload_interval_msec`	Specifies the time interval between bringing up MLAG ports in milliseconds. The range is 0–10,000.

Default

By default, this feature is disabled.

Usage Guidelines

MLAG reload delay timer is used to disable MLAG ports during configuration load to allow time for the convergence of protocols and for reachability of MLAG peers (`configure mlag ports` **`reload-delay`** *`reload-delay`*. When there is a large number of MLAG ports (50+), and when all of them are brought up at the same time after the reload delay timer expires, a high convergence time of 1.5 seconds might occur. This command configures a time delay between each of the MLAG ports coming up.

To view the current selection for reload interval, use the `show mlag ports {`*`port_list`*`}` command.

Example

The following example configures reload delay interval of 50 milliseconds:

```
# configure mlag ports reload-interval 50
```

History

This command was first available in ExtremeXOS 22.7.2.

Platform Availability

This command is available on all ExtremeSwitching series switches.

New and Corrected Features in ExtremeXOS 22.7

This section lists the new and corrected features supported in the ExtremeXOS 22.7 software:

Extended Edge Switching Ring Topology

The Extended Edge Switching ring topology feature allows two Extended Edge Switching (VPEX) cascades to be joined together to form a control plane ring. When a link breaks or a bridge port extender (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 redundant connection from any BPE in the ring to the CB. This is especially useful in a wiring closet application where the BPEs are located in the closet, and the CB is located more centrally, and there are only two links wired from the CB to the closet. Each cascade is formed from the control plane perspective only; the data plane acts as if there were two cascades consisting of BPEs that are each present in only one cascade.

Supported Platforms

CBs: Summit X670-G2 and ExtremeSwitching X690, X590 series switches.

BPEs: V400-24t-10GE2, V400-24p-10GE2, V400-48t-10GE4, V400-48p-10GE4 virtual port extenders.

Limitations

- A maximum of 8 BPEs per ring is supported.
- A ring can be formed from exactly one or two cascades. A cascade (or any part thereof) can be a part of at only one ring.
- Three-way MLAG is not supported.

New CLI Commands

`configure vpex mlag-id mlag_id peer peer_name slot slot_num`

`unconfigure vpex [ports port_list | mlag-id] mlag_id] slot`

`show vpex topology { port port_num} {summary | detail}`

`configure vpex ring rebalancing [auto | off]`

Changed CLI Commands

The following show commands now display Extended Edge Switching ring topology information:

`show vpex bpe`

`show vpex ports ports_list`

`show {port port_number} sharing {detail}`

`show vpex`

Command Line Interface (CLI) History Expansion

The history expansion character '!' can be used to specify a command from the history that is substituted into the command line. All occurrences of the form "!n:w" in the command are replaced with the w'th word from the n'th line in the command history. Specification of the word is optional.

Supported Platforms

Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X440-G2, X590, X620, X690, X870 series switches.

New CLI Commands

```
enable cli history expansion {session | permanent}
```

```
disable cli history expansion {session | permanent}
```

Changed CLI Commands

The following show command now shows the CLI history expansion status:

```
show management
```

New Access Control List (ACL) Match Condition

ExtremeXOS 22.7.2-Patch1-3 introduces a new Access Control List (ACL) match condition:

```
packet-lookup-status status1 {,status2 {,status3}}}
```

This new ACL match condition matches if the packet's lookup status satisfies all the statuses listed in the match condition. The lookup status value can be one of the following:

- destination-mac-hit or destination-mac-miss
- source-mac-miss or source-mac-hit or source-mac-move
- source-mac-static

Supported Platforms

Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X440-G2, X590, X620, X690, X870 series switches.

Enabling/Disabling Ports for a Multi-switch Link Aggregation Group (MLAG) ID

ExtremeXOS 22.7.2-Patch1-3 introduces a new pair of commands to enable and disable ports for a multi-switch link aggregation group (MLAG) ID.

Supported Platforms

Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X440-G2, X590, X620, X690, X870 series switches.

New CLI Commands

```
enable ports [mlag-id mlag_id]
```

```
disable ports [mlag-id mlag_id]
```

New Command for External Python Scripting Support

Previously, when Federal Information Processing Standards (FIPS) mode was turned off, external Python scripting support was automatically on.

ExtremeXOS 22.7 includes a new command to turn on/off external Python scripting support when FIPS mode is off.

Support Platforms

Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X440-G2, X590, X620, X690, X870 series switches.

New CLI Commands

`configure security python [on | off]`

Changed CLI Commands

The following command now shows external Python scripting support status. Changes are underlined:

`show security [fips-mode | python]`

Stacking V400 Alternative Configuration Required for Certain Fiber Cables

V400 is the default mode that sets the stack ports to 106G. V400 alternative configuration is required when using specific fiber cables. This mode sets the stack ports to 100G, enables pre-emphasis, and FEC (clause_91).

Cables requiring Alternative Configuration include:

- QSFP28 SR4
- QSFP28 LR4
- QSFP28 CWDM4
- QSFP28 PSM4
- QxQ AOC cable - 5m
- QxQ AOC cable - 7m
- QxQ AOC cable - 10m
- QxQ AOC cable - 20m

For a complete list of supported cables, see *ExtremeSwitching and Summit Switches: Hardware Installation Guide for Switches Using ExtremeXOS 21.1 or Later*.

Supported Platforms

ExtremeSwitching X590, X690, X870 series switches.

Changed CLI Commands

Changes are underlined.

`configure stacking-support stack-port [stack-ports | all] selection [native {V80 | V160} | V320 |V400 {alternative-configuration} | help} | alternate]`

New Command for Copying an Image from the Active to the Inactive Partition

To avoid the need to download an image multiple times in order to install it onto both partitions of a switch, a new command is introduced in ExtremeXOS 22.7. This command copies the image (.xos image and all .xmod and .lst files) on the active partition to the inactive partition.

Supported Platforms

Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X440-G2, X590, X620, X690, X870 series switches.

New CLI Commands

`install image` **`inactive`** {**`slot`** *`slot`*}

New Count Filter for Show Commands

ExtremeXOS 22.7.2-Patch1-3 introduces a new count filter for show commands. This filter adds the ability to display the number of lines of output from a show command with or without actual filtering.

Supported Platforms

Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X440-G2 , X590, X620, X690, X870 series switches.

Changed CLI Commands

Changes are underlined.

`show` *`specific show command syntax`* | [[**`begin`** | **`exclude`** | **`grep`** | **`include`**] { **`ignore-case`** } *`regexp`* { | **`count`** } | **`count`**]

ONEPolicy Classification Rule Precedence Re-ordering

Starting with ExtremeXOS 22.7, you can modify the default precedence of ONEPolicy profile rules. You can configure the precedence for the rule types within each rule group. The rule groups currently supported are MAC, IPv6, IPv4, and Layer2.

Supported Platforms

Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X440-G2, X590, X620, X690, X870 series switches.

Changed CLI Commands

Changes are underlined.

`configure policy profile` *`profile_index`* {**`name`** *`name`*} {**`pvid`** *`pvid`*} {**`pvid-status`** *`pvid_status`*} {**`cos`** *`cos`*} {**`cos-status`** *`cos_status`*} {**`egress-vlans`** *`egress_vlan_list`*}{**`forbidden-vlans`** *`forbidden_vlans`*} {**`untagged-vlans`** *`untagged_vlans`*} {**`append`** | **`clear`**} {**`tci-overwrite`** *`tci_overwrite`*} {**`precedence`** [*`precedence`* | **`default`**]} {**`auth-override`** *`auth_override`*} {**`nsi`** [*`nsi`* | **`none`**]} {**`web-redirect`** *`web_redir_index`*}

Ability to Rename Existing MLAG Peers

You can now rename an existing MLAG peer without having to delete, and then re-create it.

Supported Platforms

Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X440-G2, X590, X620, X690, X870 series switches.

New CLI Commands

`configure { mlag peer } peer_name name new_peer_name`

Convergence End Point (CEP) Added to Network Login Authentication Protocol Order Command

In ExtremeXOS 22.7.2-Patch1-3, Convergence End Point (CEP) has been added to the command that configures the order of the Network Login (NetLogin) port's authentication protocols.

Supported Platforms

Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X440-G2, X590, X620, X690, X870 series switches.

Changed CLI Commands

Changes are underlined.

`configure netlogin authentication protocol-order [[dot1x [web-based | mac | cep]] | [mac [dot1x | web-based | cep]] | [web-based [dot1x | mac | cep]] | [cep [dot1x | web-based | mac]]]`

Ability to Configure Ethernet Ring Protection Switching (ERPS) Ring ID

ExtremeXOS 22.7.2-Patch1-3 now has the ability to configure an Ethernet Ring Protection Switching (ERPS) ring ID when creating the ring.

Supported Platforms

Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X440-G2, X590, X620, X690, X870 series switches.

Changed CLI Commands

Changes are underlined.

`create erps ring-name {ring-id ring_id}`

Ability to Send Router Advertisements Only with Virtual Router Redundancy Protocol's (VRRP) Virtual Link Local Address (LLA)

In Virtual Router Redundancy Protocol (VRRP) IPv6 environment, previously ExtremeXOS sent the router advertisements (RA) using link local address (LLA) configured on VLAN interface from VRRP master, backup, and router advertisements having VRRP's link local address from VRRP master. This

caused the host to have three default gateways (host gets gateway address from RA). This in turn could cause the host to use the VLAN link local IP address of the VRRP Backup as the gateway, and thus the host would experience connectivity issues.

This new feature introduces a command to avoid this problem by allowing you to specify sending the RAs having only the VRRP's LLA from the VRRP master.

Supported Platforms

Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X440-G2, X590, X620, X690, X870 series switches.

New CLI Commands

`configure {vlan} vlan_name router-discovery {ipv6} vrrp-lla-only on_off`

Changed CLI Commands

The following command now shows the status of how router advertisements are sent:

`show router-discovery {ipv6} {vlan vlan_name}`

CLI History Lookup

You can now find and re-execute CLI commands from the history.

To find a previously entered command:

1. Press **CTRL** + **R**. The prompt changes to `reverse-i-search`.
2. Start typing any part of the desired command. The CLI shows matching commands from the history. If there are multiple matches, press **CTRL** + **R** again to view additional matches.
3. To use the recovered command:
   - To execute the command with no changes, press **ENTER**.
   - To modify the command at the searched word, press **ESC** to place the command in the prompt with the cursor on the searched word.
   - To modify the command from the end of the command, press **CTRL** + **E** to place the command in the prompt with the cursor at the end of the command.

Supported Platforms

Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X440-G2, X590, X620, X690, X870 series switches.

New Command to Configure Ethernet Ring Protection Switching (ERPS) Control MAC Address

There is a new command that configures control MAC (either default or auto) on a particular Ethernet Ring Protection Switching (ERPS) ring instance.

Supported Platforms

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

New CLI Commands

`configure` **`erps`** *`ring-name`* **`control-mac`** [**`auto`** | **`default`**]

New Command to Prevent Extended Edge Automatic Configuration from Running

ExtremeXOS now provides a command to prevent Extended Edge automatic configuration (Zero Touch Provisioning (ZTP)) from running.

Automatic configuration occurs when an unconfigured controlling bridge (CB) (new, out of the shipping box, or manually unconfigured) is rebooted with attached bridge port extenders (BPEs).

Supported Platforms

Summit X670-G2 and ExtremeSwitching X690, X590 series switches.

New CLI Commands

`terminate vpex ztp`

Changed CLI Commands

The following show command now shows ZTP status:

`show vpex`

Ping Success Added for Policy-Based Redirection

ExtremeXOS now has a ping success count option for checking if a nexthop is up for policy-based redirection.

Supported Platforms

Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X440-G2, X590, X620, X690, X870 series switches.

Changed CLI Commands

Changes are underlined.

`configure` **`flow-redirect`** *`flow_redirect_name`* **`nexthop`** *`ip_address`* **`ping health-check interval`** *`seconds`* **`miss`** *`number`* {**`success`** *`successes`*}

The following show command shows ping success information:

`show flow-redirect {`*`flow_redirect_name`*`}`

Extreme Loop Recovery Protocol (ELRP) MAC Address Change

The Extreme Loop Recovery Protocol (ELRP) source MAC address has changed from "00:e0:2b:00:00:01" to “0e:Switch-MAC” starting with ExtremeXOS 22.5.

Updating the Programmable Logic Firmware on the Summit X440-G2 and ExtremeSwitching X620 Series Switches

You can update the programmable logic firmware components (FPGA and PLD) on the ExtremeSwitching X440-G2 and X620 series switches. Starting with ExtremeXOS 22.3, a firmware update was made available for the ExtremeSwitching X440-G2 and X620 series switches that provides the following enhancements:

- Enhanced robustness of interface-to-system LEDs and power supply status signals
- Added support for "Repeated Start" mechanism to improve interface to a subset of optics that require it
- Additional power monitoring (ExtremeSwitching X620 only)

However, because of manufacturing cut-in times, some switches may have older firmware. If the switch requires an update, the following messages appear during system start-up:

```
<Warn:HAL.Card.Warning> Switch PLD1 firmware is out of date, do 'install firmware' to
update.
<Warn:HAL.Card.Warning> Switch FPGA firmware is out of date, do 'install firmware' to
update.
```

To view the current firmware versions, use the command `show version` **`detail`**. The following shows sample output from this command with the firmware version in bold:

```
# show version detail
Switch      : 800624-00-01 1516G-01246 Rev 1.0 BootROM: 1.0.1.7    IMG: 22.3.0.35
              FPGA: 1.1.42.0 PLD1: 1.0.10.0
….
```

The new firmware versions included in ExtremeXOS 22.3 and later are FPGA 1.1.44.0 and PLD 2.0.14.0.

Use the `install firmware` command to update the firmware. Running this command requires a reboot of the switch, which can be performed at any time after the command has completed. For more information about this command, see the *ExtremeXOS 22.7 Command Reference Guide*.

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, as well as pluggable transceivers and cables.

This guide also provides information about which optics are supported on which hardware platforms, and the minimum software version required.

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

Compatibility with Extreme Management Center (Formerly NetSight)

ExtremeXOS 22.7.2-Patch1-3 is compatible with the version of Extreme Management Center as shown in this table: http://emc.extremenetworks.com/content/common/releasenotes/extended_firmware_support.htm

Supported MIBs

The Extreme Networks management information bases (MIBs) are located 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 22.7 User Guide*.

Tested Third-Party Products

The following third-party products have been tested for ExtremeXOS 22.7.2-Patch1-3.

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)

PoE Capable VoIP Phones

The following PoE capable VoIP phones are fully tested:

- Avaya 4620
- Avaya 4620SW IP telephone
- Avaya 9620
- Avaya 4602
- Avaya 9630
- Avaya 4621SW
- Avaya 4610
- Avaya 1616

- Avaya one-X
- Cisco 7970
- Cisco 7910
- Cisco 7960
- ShoreTel ShorePhone IP 212k
- ShoreTel ShorePhone IP 560
- ShoreTel ShorePhone IP 560g
- ShoreTel ShorePhone IP 8000
- ShoreTel ShorePhone IP BB 24
- Siemens OptiPoint 410 standard–2
- Siemens OpenStage 20
- Siemens OpenStage 40
- Siemens OpenStage 60
- Siemens OpenStage 80

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

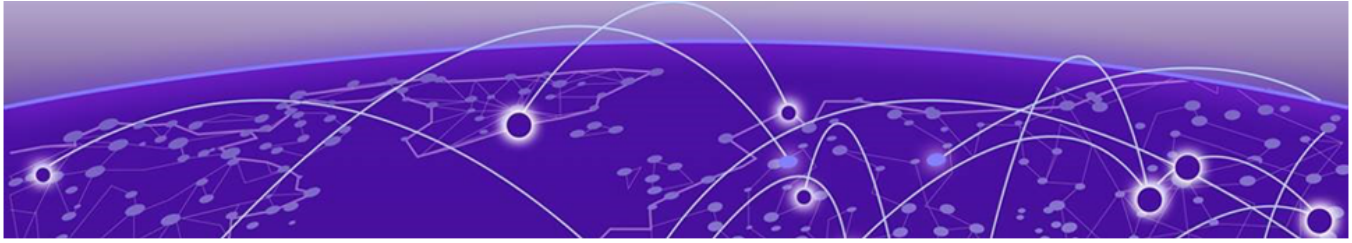
Port Scan Assessment

Tools used to assess port scan assessment:

- Nessus

Service Notifications

To receive proactive service notifications about newly released software or technical service communications (such as, field notices, or product change notices), register at: www.extremenetworks.com/support/service-notification-form



Limits

This chapter summarizes the supported limits in ExtremeXOS 22.7.2-Patch1-3.

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

- Supported Limits for Edge License on page 24
- Supported Limits for Advanced Edge License on page 51
- Supported Limits for Core License on page 60

For more information about licenses, see *ExtremeXOS 22.7 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, Summit X670-G2 or ExtremeSwitching X690 and X590 series switches) in use. For applicable limits, see the following tables for the controlling bridge you are using.

Supported Limits for Edge License

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

Table 4: Supported Limits for Edge License

Metric	Product	Limit
AAA (local)—maximum number of admin and local user accounts.	All platforms	16
Access lists (meters)—maximum number of meters.	ExtremeSwitching X620, X440-G2	1,024 ingress 256 egress
	Summit X770, X670-G2, X450-G2, X460-G2	1,024 ingress 512 egress
	ExtremeSwitching X870, X690, X590	2,048 ingress 512 egress
Access lists (policies)—suggested maximum number of lines in a single policy file.	All platforms	300,000
Access lists (policies)—maximum number of rules in a single policy file. [a]	Summit X460-G2, X450-G2, X770, 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	8,192 ingress 1,024 egress
Access lists (policies)—maximum number of rules in a single policy file in first stage (VFP).	Summit X450-G2, X460-G2	2,048 ingress only
	Summit X670-G2, X770, ExtremeSwitching X870, X690	1,024 ingress only
	ExtremeSwitching X620, X440-G2	512 ingress only
	ExtremeSwitching X590	2,048 ingress only
Access lists (slices)—number of ACL slices.	Summit X460-G2, X450-G2	16 ingress 4 egress
	Summit X770, X670-G2, ExtremeSwitching X690, X590	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).	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	4 ingress only

Table 4: Supported Limits for Edge License (continued)

Metric	Product	Limit
ACL Per Port Meters—number of meters supported per port.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	16
ACL port ranges	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	32
Meters Packets-Per-Second Capable	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	Yes
AVB (audio video bridging)—maximum number of active streams.	Summit X450-G2, X460-G2, X770, and ExtremeSwitching X620, X440-G2	1,024
	Summit X670-G2	4,096
	ExtremeSwitching X590, X690, X870	N/A
BFD sessions (Software Mode)—maximum number of BFD sessions.	Summit X460-G2, X670-G2, X450-G2, X770, ExtremeSwitching X440-G2, X620, X870, X690, X590 (default timers—1 sec)	512
	Summit X460-G2, X670-G2, X450-G2, X770, ExtremeSwitching X440-G2, X620, X870, X690, X590 (minimal timers—100 msec)	10 [C]
BFD IPv4 sessions (Hardware Assisted)—maximum number of IPv4 BFD sessions.	Summit X460-G2, ExtremeSwitching X870, X690, X590	900 (PTP not enabled) 425 (PTP enabled) 256 (with 3 ms transmit interval)
BFD IPv6 sessions (Hardware Assisted)—maximum number of IPv6 BFD sessions.	Summit X460-G2, ExtremeSwitching X870, X690, X590	425 (PTP not enabled)
BOOTP/DHCP relay—maximum number of BOOTP or DHCP servers per virtual router.	Summit X460-G2, X670-G2, X770, X450-G2, and ExtremeSwitching X440-G2, X620, X870, X690, X590	8
BOOTP/DHCP relay—maximum number of BOOTP or DHCP servers per VLAN.	Summit X460-G2, X670-G2, X770, X450-G2, and ExtremeSwitching X440-G2, X620, X870, X690, X590	8
BOOTP/DHCP relay—maximum number of DHCPv4/v6 relay agents	Summit X460-G2, X670-G2, X770, X450-G2, and ExtremeSwitching X440-G2, X620, X870, X690, X590	4,000
Connectivity fault management (CFM)—maximum number or CFM domains. Note: With Advanced Edge license or higher.	Summit X460-G2, X670-G2, X770, X450-G2, and ExtremeSwitching X440-G2, X620, X870, X690, X590	8

Table 4: Supported Limits for Edge License (continued)

Metric	Product	Limit
CFM—maximum number of CFM associations. Note: With Advanced Edge license or higher.	Summit X460-G2, X670-G2, X770, X450-G2, and ExtremeSwitching X440-G2, X620, X870, X690, X590	256
CFM—maximum number of CFM up end points. Note: With Advanced Edge license or higher.	Summit X460-G2, X670-G2, X770, X450-G2, and ExtremeSwitching X440-G2, X620, X870, X690, X590	32
CFM—maximum number of CFM down end points. Note: With Advanced Edge license or higher.	Summit X670-G2, X770, X450-G2, and ExtremeSwitching X440-G2, X620, X870, X690, X590	32
	Summit X460-G2	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.	Summit X460-G2, X670-G2, X770, X450-G2, and ExtremeSwitching X440-G2, X620, X870, X690, X590	2,000
CFM—maximum number of dot1ag ports. Note: With Advanced Edge license or higher.	Summit X460-G2, X670-G2, X770, X450-G2, and ExtremeSwitching X440-G2, X620, X870, X690, X590	128
CFM—maximum number of CFM segments. Note: With Advanced Edge license or higher.	Summit X460-G2, X670-G2, X770, X450-G2, and ExtremeSwitching X440-G2, X620, X870, X690, X590	1,000
CFM—maximum number of MIPs. Note: With Advanced Edge license or higher.	Summit X460-G2, X670-G2, X770, X450-G2, and ExtremeSwitching X620, X440-G2, X870, X690, X590	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.	Summit X460-G2, X770, X670-G2, X450-G2	4,094
	ExtremeSwitching X440-G2, X620	1,024
	ExtremeSwitching X870	3,072
	ExtremeSwitching X690, X590	8,192

Table 4: 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.	Summit X460-G2, X670-G2, X770, X450-G2, and ExtremeSwitching X440-G2, X620, X870, X690, X590	8
DHCPv6 Prefix Delegation Snooping—Maximum number of DHCPv6 prefix delegation snooped entries.	Summit X460-G2, X670-G2, X770, X450-G2, and ExtremeSwitching X620, X440-G2, X870, X690, X590	256 (with Underlying Protocol Ripng) 128 (with Underlying protocol OSPFv3) 1,024 (with static routes)
DHCP snooping entries—maximum number of DHCP snooping entries.	Summit X460-G2, X670-G2, X770, X450-G2, and ExtremeSwitching X620, X440-G2, X870, X690, X590	2,048
Dynamic ACLs—maximum number of ACLs processed per second. Note: Limits are load-dependent.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	
	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.	Summit X670-G2, X450-G2, X460-G2, X770,and ExtremeSwitching X440-G2, X620, X870, X690, X590	4
EAPSv1 protected VLANs—maximum number of protected VLANs.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2	1,000
	ExtremeSwitching X870, X690, X590	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.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	4
ERPSv1 protected VLANs—maximum number of protected VLANs.	ExtremeSwitching X870, X690, X590	2,000
	Summit X450-G2, X460-G2, X670-G2, X770, ExtremeSwitching X620, X440-G2	1,000

Table 4: Supported Limits for Edge License (continued)

Metric	Product	Limit
ERPSv2 protected VLANs—maximum number of protected VLANs.	Summit X450-G2, X460-G2, X670-G2, and ExtremeSwitching X870, X690, X590	2,000
	Summit X770, ExtremeSwitching X620, X440-G2	500
ELSM (vlan-ports)—maximum number of VLAN ports.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X870, X690, X590	5,000
	ExtremeSwitching X440-G2	4,000
Extended Edge Switching maximum BPEs—maximum number of attached bridge port extenders (BPEs).	Summit X670-G2, ExtremeSwitching X690, X590	48
Extended Edge Switching maximum BPEs per ring—maximum number of attached bridge port extenders (BPEs) per ring.	Summit X670-G2, ExtremeSwitching X690, X590	8
Extended Edge Switching maximum cascade ports—maximum number of upstream ports on bridge port extenders (BPEs).	Summit X670-G2, ExtremeSwitching X690, X590	2 on V400-24 models 4 on V400-48 models
Extended Edge Switching maximum tiers—maximum number of cascade levels (tiers) of bridge port extenders (BPEs).	Summit X670-G2, ExtremeSwitching X690, X590	4
Extended Edge Switching VLAN+ port memberships—maximum number of VLAN+ (extended) port memberships.	Summit X670-G2, ExtremeSwitching X690, X590	12,000 in hash mode (default) 131,000 in port-group mode
Forwarding rate—maximum L3 software forwarding rate.	ExtremeSwitching X690, X590	30,000 pps
	ExtremeSwitching X870	32,000 pps
	Summit X450-G2	16,000 pps
	Summit X460-G2	17,000 pps
	ExtremeSwitching X620	10,000 pps
	Summit X670-G2	15,000 pps
	Summit X770	6,500 pps
	ExtremeSwitching X440-G2	9,000 pps

Table 4: Supported Limits for Edge License (continued)

Metric	Product	Limit
FDB (unicast blackhole entries)—maximum number of unicast blackhole FDB entries.	Summit X460-G2	49,152[f]
	Summit X770, X670-G2	294,912[f]
	Summit X450-G2	34,816[f]
	ExtremeSwitching X620, X440-G2	16,384[f]
	ExtremeSwitching X870	139,264[f]
	ExtremeSwitching X690, X590	278,528[f]
FDB (multicast blackhole entries)—maximum number of multicast blackhole FDB entries.	Summit X460-G2, X450-G2, and ExtremeSwitching X440-G2, X620	1,024
	Summit X770, X670-G2, ExtremeSwitching X870, X690, X590	4,096
FDB (maximum L2 entries)—maximum number of MAC addresses.	Summit X460-G2	98,300[g]
	Summit X770, X670-G2	294,912[g]
	Summit X450-G2	68,000[g]
	ExtremeSwitching X620, X440-G2	16,384
	ExtremeSwitching X870	139,264[g]
	ExtremeSwitching X690, X590	278,528[g]
FDB (Maximum L2 entries)—maximum number of multicast FDB entries.	Summit X770, X670-G2, ExtremeSwitching X870, X690, X590	4,096
	Summit X450-G2, X460-G2, and ExtremeSwitching X620, X440-G2	1,024
Identity management—maximum number of Blacklist entries.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	512
Identity management—maximum number of Whitelist entries.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	512
Identity management—maximum number of roles that can be created.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	64
Identity management—maximum role hierarchy depth allowed.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	5
Identity management—maximum number of attribute value pairs in a role match criteria.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	16
Identity management—maximum of child roles for a role.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	8
Identity management—maximum number of policies/dynamic ACLs that can be configured per role.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	8

Table 4: Supported Limits for Edge License (continued)

Metric	Product	Limit
Identity management—maximum number of LDAP servers that can be configured.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	8
Identity management—maximum number of Kerberos servers that can be configured.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	20
Identity management—maximum database memory-size.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	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.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	100
Identity management—recommended number of ACL entries per identity. Note: Number of ACLs per identity, based on system ACL limitation.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	20
Identity management—maximum number of dynamic ACL entries configured as an individual dynamic rule, or as an ACL entry in a policy file.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	500
IGMP snooping per VLAN filters—maximum number of VLANs supported in per-VLAN IGMP snooping mode.	Summit X460-G2, ExtremeSwitching X870	1,500
	Summit X450-G2	2,048
	Summit X770, X670-G2	2,000
	ExtremeSwitching X620, X440-G2	1,000
	ExtremeSwitching X690, X590	4,000
IGMPv1/v2 SSM-map entries—maximum number of IGMPv1/v2 SSM mapping entries.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	500
IGMPv1/v2 SSM-map entries—maximum number of sources per group in IGMPv1/v2 SSM mapping entries.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	50
IGMPv2 subscriber—maximum number of IGMPv2 subscribers per port. [n]	Summit X770, X670-G2, X460-G2, X450-G2	4,000
	ExtremeSwitching X440-G2, X620	3,500
	ExtremeSwitching X870, X690, X590	4,000

Table 4: Supported Limits for Edge License (continued)

Metric	Product	Limit
IGMPv2 subscriber—maximum number of IGMPv2 subscribers per switch.[n]	Summit X770, X670-G2	30,000
	Summit X460-G2, X450-G2	20,000
	ExtremeSwitching X620, X440-G2	17,500
	ExtremeSwitching X870, X690, X590	45,000
IGMPv3 maximum source per group—maximum number of source addresses per group.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	250
IGMPv3 subscriber—maximum number of IGMPv3 subscribers per port.[n]	Summit X770, X670-G2, X460-G2, X450-G2	4,000
	ExtremeSwitching X440-G2, X620	3,500
	ExtremeSwitching X870, X690, X590	4,000
IGMPv3 subscriber—maximum number of IGMPv3 subscribers per switch.[n]	Summit X460-G2, X450-G2	20,000
	Summit X770, X670-G2	30,000
	ExtremeSwitching X620, X440-G2	17,500
	ExtremeSwitching X870, X690, X590	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).	Summit X670-G2, X770	131,072 (up to)[h]
	Summit X460-G2	57,344 (up to)[h]
	Summit X450-G2	47,000 (up to)[h]
	ExtremeSwitching X440-G2, X620	20,480
	ExtremeSwitching X870	94,206 (up to)[h]
	ExtremeSwitching X690, X590	157,694 (up to)[h]
IPv4 ARP entries in hardware with minimum LPM routes—maximum recommended number of IPv4 ARP entries in hardware, with minimum LPM routes present. Assumes number of IP route reserved entries is 100 or less.	ExtremeSwitching X870	74,000 (up to)[h]
	Summit X460-G2	50,000 (up to)[h]
	Summit X770, X670-G2	108,000 (up to)[h]
	Summit X450-G2	39,000 (up to)[h]
	ExtremeSwitching X620	1,500
	ExtremeSwitching X440-G2	1,000
	ExtremeSwitching X690, X590	119,000 (up to)[h]

Table 4: Supported Limits for Edge License (continued)

Metric	Product	Limit
IPv4 ARP entries in hardware with maximum LPM routes—maximum recommended number of IPv4 ARP entries in hardware, with maximum LPM routes present. Assumes number of IP route reserved entries is "maximum."	ExtremeSwitching X870	64,000 (up to)[h]
	Summit X460-G2	43,000 (up to)[h]
	Summit X770, X670-G2	98,000 (up to)[h]
	Summit X450-G2	29,000 (up to)[h]
	ExtremeSwitching X620	1,500
	ExtremeSwitching X440-G2	1,000
	ExtremeSwitching X690, X590	109,000 (up to)[h]
IP flow information export (IPFIX)—number of simultaneous flows.	Summit X460-G2	2,048 ingress 2,048 egress
	Summit X450-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	N/A
IPv4 remote hosts in hardware with zero LPM routes—maximum recommended number of IPv4 remote hosts (hosts reachable through a gateway) in hardware when LPM routing is not used. Assumes number of IP route reserved entries is 0, and number of IPv4 ARP entries present is 100 or less.	ExtremeSwitching X870	120,000 (up to)[h]
	Summit X460-G2	73,000[h]
	Summit X770, X670-G2	176,000 (up to)[h]
	Summit X450-G2	61,000 (up to)[h]
	ExtremeSwitching X440-G2, X620	3,500
	ExtremeSwitching X690, X590	216,000 (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.	Summit X460-G2, X450-G2, X440-G2, X620	25,000
	Summit X670-G2, ExtremeSwitching X690, X870, X590	131,000
	Summit X770	100,000
IPv4 routes (LPM entries in hardware)— number of IPv4 routes in hardware.	Summit X460-G2	12,000
	Summit X450-G2	16,000
	Summit X670-G2, X770, ExtremeSwitching X690, X870, X590	131,000[q]
	ExtremeSwitching X620, X440-G2	480
IPv6 6in4 tunnel—maximum number of IPv6 6in4 tunnels.	Summit X450-G2, X460-G2, X670-G2, X770, ExtremeSwitching X870, X690, X590	255
	ExtremeSwitching X440-G2, X620	N/A

Table 4: Supported Limits for Edge License (continued)

Metric	Product	Limit
IPv6 6to4 tunnel—maximum number of IPv6 6to4 tunnels.	Summit X450-G2, X460-G2, X670-G2, X770, ExtremeSwitching X870, X690, X590	1 (per virtual router)
	ExtremeSwitching X440-G2, X620	N/A
IPv6 addresses on an interface—maximum number of IPv6 addresses on an interface.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	255
IPv6 addresses on a switch—maximum number of IPv6 addresses on a switch.	Summit X770, X670-G2, X460-G2, X450-G2, ExtremeSwitching X870, X690, X590	2,048
	ExtremeSwitching X620, X440-G2	510
IPv6 host entries in hardware—maximum number of IPv6 neighbor entries in hardware.	Summit X770, X670-G2	36,750 [h]
	Summit X460-G2	22,000 [h]
	Summit X450-G2	12,000 [h]
	ExtremeSwitching X440-G2	1,000
	ExtremeSwitching X620	1,500
	ExtremeSwitching X690, X590	24,500 [h]
	ExtremeSwitching X870	22,000 [h]
IPv6 routes in software—maximum number of IPv6 routes in software, including static routes and routes from all routing protocols.	Summit X450-G2, X460-G2, and ExtremeSwitching X620, X440-G2	25,000
	Summit X670-G2, X770, ExtremeSwitching X690, X870, X590	65,000 [q]
IPv6 routes (LPM entries in hardware)—maximum number of IPv6 routes in hardware.	Summit X460-G2	6,000
	Summit X450-G2	8,000
	Summit X670-G2, X770, ExtremeSwitching X690, X870, X590	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.	Summit X670-G2, X770, ExtremeSwitching X690, X870, X590	8,192 [r]
	ExtremeSwitching X440-G2, X620	1,024
	Summit X450-G2, X460-G2	2,048
IPv6 route sharing in hardware—route mask lengths for which ECMP is supported in hardware.	Summit X460-G2, X450-G2, and ExtremeSwitching X620	0–64 >64 single path only
	Summit X670-G2, X770, and ExtremeSwitching X690, X870, X590	0–128 [r]
	ExtremeSwitching X440-G2	Not supported
IP router interfaces—maximum number of VLANs performing IPv4 and/or IPv6 routing. Excludes sub-VLANs.	Summit X460-G2, X770, X670-G2, X450-G2, ExtremeSwitching X870, X690, X590	2,048
	ExtremeSwitching X620, X440-G2	510

Table 4: Supported Limits for Edge License (continued)

Metric	Product	Limit
IP multicast static routes—maximum number of permanent multicast IP routes.	Summit X460-G2, X670-G2, X450-G2, X770, ExtremeSwitching X870, X690, X590	1,024
IP unicast static routes—maximum number of permanent IP unicast routes.	Summit X460-G2, X670-G2, X450-G2, X770, ExtremeSwitching X870, X690, X590	1,024
	ExtremeSwitching X620, X440-G2	480
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.	Summit X460-G2, X670-G2, X450-G2, X770, and ExtremeSwitching X620, X870, X690, X590	2, 4, 8, 16, 32, or 64
	ExtremeSwitching X440-G2	N/A

Table 4: 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.	Summit X670-G2, X770	
	if maximum gateways is 2 if maximum gateways is 4 if maximum gateways is 8 if maximum gateways is 16 (default) if maximum gateways is 32 if maximum gateways is 64	1,022 1,022 1,022 1,022 510 254
	Summit X460-G2, X450-G2	
	if maximum gateways is 2 if maximum gateways is 4 if maximum gateways is 8 if maximum gateways is 16 (default) if maximum gateways is 32 if maximum gateways is 64	1,022 1,022 510 254 126 62
	ExtremeSwitching X620	
	if maximum gateways is 2 if maximum gateways is 4 if maximum gateways is 8 if maximum gateways is 16 (default) if maximum gateways is 32 if maximum gateways is 64	126 126 126 126 62 30
	ExtremeSwitching X690, X590	
	if maximum gateways is 2 if maximum gateways is 4 if maximum gateways is 8 if maximum gateways is 16 (default) if maximum gateways is 32 if maximum gateways is 64 Note: The values here represent the maximum attainable ECMP groups of which, due to the RIOT feature, half are reserved for overlay and half for underlay routing. For more information about RIOT, see the *ExtremeXOS 22.7 User Guide*.	4,094 4,094 2,046 1,022 510 254
	ExtremeSwitching X870	
	if maximum gateways is 2 if maximum gateways is 4 if maximum gateways is 8 if maximum gateways is 16 (default) if maximum gateways is 32 if maximum gateways is 64	2,046 2,046 2,046 1,022 510 254
	ExtremeSwitching X440-G2	N/A

Table 4: Supported Limits for Edge License (continued)

Metric	Product	Limit
IP multinetting (secondary IP addresses)—maximum number of secondary IP addresses per VLAN.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	255
Jumbo frames—maximum size supported for jumbo frames, including the CRC.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	9,216
L2 VPN: VCCV (pseudowire Virtual Circuit Connectivity Verification) VPNs per switch—maximum number of VCCV enabled VPLS VPNs.	Summit X460-G2, X670-G2, X770, ExtremeSwitching X870, X690, X590	16
	Summit X450-G2, and ExtremeSwitching X620, X440-G2	N/A
L2 VPN: VPLS MAC addresses—maximum number of MAC addresses learned by a switch.	Summit X770	128,000
	Summit X670-G2, ExtremeSwitching X690, X590	140,000
	Summit X460-G2	55,000
	ExtremeSwitching X870	65,000
	Summit X450-G2, and ExtremeSwitching X620, X440-G2	N/A
L2 VPN: VPLS VPNs—maximum number of VPLS virtual private networks per switch.	Summit X460-G2, X770, X670-G2, ExtremeSwitching X870, X690, X590	1,023
	Summit X450-G2, and ExtremeSwitching X620, X440-G2	N/A
L2 VPN: VPLS peers—maximum number of VPLS peers per VPLS instance.	Summit X770, X670-G2, X460-G2, ExtremeSwitching X870, X690, X590	64
	Summit X450-G2, and ExtremeSwitching X620, X440-G2	N/A
L2 VPN: LDP pseudowires—maximum number of pseudowires per switch.	Summit X770, X670-G2, X460-G2, and ExtremeSwitching X870, X690, X590	7,000
	Summit X450-G2, and ExtremeSwitching X620, X440-G2	N/A
L2 VPN: static pseudowires—maximum number of static pseudowires per switch.	Summit X670-G2, X460-G2, X770, ExtremeSwitching X870, X690, X590	7,000
	Summit X450-G2, and ExtremeSwitching X620, X440-G2	N/A
L2 VPN: Virtual Private Wire Service (VPWS) VPNs—maximum number of virtual private networks per switch.	Summit X670-G2, ExtremeSwitching X870, X690, X590	4,090
	Summit X460-G2	1,023
	Summit X770	4,000
	Summit X450-G2, and ExtremeSwitching X620, X440-G2	N/A

Table 4: 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.	Summit X770, X670-G2	73,000
	Summit X460-G2	24,000
	Summit X450-G2	14,000
	ExtremeSwitching X620, X440-G2	5,000
	ExtremeSwitching X870	36,000
	ExtremeSwitching X690, X590	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.	Summit X460-G2	26,000
	Summit X450-G2	21,000
	Summit X770, X670-G2	77,500
	ExtremeSwitching X620, X440-G2	1,500
	ExtremeSwitching X870	52,000
	ExtremeSwitching X690, X590	93,000
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.	Summit X770, X670-G2	30,000
	Summit X460-G2	14,000
	Summit X450-G2	10,000
	ExtremeSwitching X620, X440-G2	700
	ExtremeSwitching X870	18,000
	ExtremeSwitching X690, X590	48,000

Table 4: 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.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	128
Load sharing—maximum number of ports per load-sharing group.	For standalone and stacked: ExtremeSwitching X620, X440-G2	8
	For standalone: Summit X770, X670-G2, X460-G2, X450-G2, ExtremeSwitching X870, X690, X590	32
	For stacked: Summit X770, X670-G2, X460-G2, X450-G2, X670-G2, and ExtremeSwitching X870, X690, X590	64
Logged messages—maximum number of messages logged locally on the system.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	20,000
MAC-based security—maximum number of MAC-based security policies.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	1,024
MAC Locking—Maximum number of MAC locking stations that can be learned on a port.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	64 (static MAC locking stations) 600 (first arrival MAC locking stations)
Meters—maximum number of meters supported.	Summit X460-G2, X450-G2, X670-G2, X770, ExtremeSwitching X440-G2, X620, X870, X690, X590	2,048

Table 4: Supported Limits for Edge License (continued)

Metric	Product	Limit
Maximum mirroring instances	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X870, X690, X590 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.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	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.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	128
Mirroring, one-to-many (monitor port)—maximum number of one-to-many monitor ports.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	16

Table 4: Supported Limits for Edge License (continued)

Metric	Product	Limit
MLAG ports—maximum number of MLAG ports allowed.	Summit X670-G2, ExtremeSwitching X690	71
	ExtremeSwitching X440-G2, Summit X450-G2	51
	Summit X460-G2	53
	Summit X770	103
	ExtremeSwitching X620	15
	ExtremeSwitching X870	127
	ExtremeSwitching X590	35
MLAG peers—maximum number of MLAG peers allowed.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	2
MPLS RSVP-TE interfaces—maximum number of interfaces.	Summit X460-G2, X670-G2, X770, ExtremeSwitching X870, X690	32
	Summit X450-G2, and ExtremeSwitching X440-G2, X620	N/A
MPLS RSVP-TE ingress LSPs—maximum number of ingress LSPs.	Summit X460-G2, X670-G2, X770, ExtremeSwitching X870, X690	2,000
	Summit X450-G2, and ExtremeSwitching X440-G2, X620	N/A
MPLS RSVP-TE egress LSPs—maximum number of egress LSPs.	Summit X460-G2, X670-G2, X770, ExtremeSwitching X870, X690	2,000
	Summit X450-G2, and ExtremeSwitching X440-G2, X620	N/A
MPLS RSVP-TE transit LSPs—maximum number of transit LSPs.	Summit X460-G2, X670-G2, X770	2,000
	ExtremeSwitching X870, X690	4,000
	Summit X450-G2, and ExtremeSwitching X440-G2, X620	N/A
MPLS RSVP-TE paths—maximum number of paths.	Summit X460-G2, X770	1,000
	Summit X670-G2, ExtremeSwitching X870, X690	2,000
	Summit X450-G2, and ExtremeSwitching X440-G2, X620	N/A
MPLS RSVP-TE profiles—maximum number of profiles.	Summit X460-G2, X770	1,000
	Summit X670-G2, ExtremeSwitching X870, X690	2,000
	Summit X450-G2, and ExtremeSwitching X440-G2, X620	N/A
MPLS RSVP-TE EROs—maximum number of EROs per path.	Summit X460-G2, X670-G2, X770, ExtremeSwitching X870, X690	64
	Summit X450-G2, and ExtremeSwitching X440-G2, X620	N/A

Table 4: Supported Limits for Edge License (continued)

Metric	Product	Limit
MPLS LDP peers—maximum number of MPLS LDP peers per switch.	Summit X770	64
	Summit X670-G2, X460-G2, ExtremeSwitching X870, X690	128
	Summit X450-G2, and ExtremeSwitching X440-G2, X620	N/A
MPLS LDP adjacencies—maximum number of MPLS LDP adjacencies per switch.	Summit X460-G2	50
	Summit X770, X670-G2, ExtremeSwitching X870, X690	64
	Summit X450-G2, and ExtremeSwitching X440-G2, X620	N/A
MPLS LDP ingress LSPs—maximum number of MPLS LSPs that can originate from a switch.	Summit X770, X670-G2, X460-G2, ExtremeSwitching X870, X690	2,048
	Summit X450-G2, and ExtremeSwitching X440-G2, X620	N/A
MPLS LDP-enabled interfaces—maximum number of MPLS LDP configured interfaces per switch.	Summit X770	64
	Summit X670-G2, X460-G2, ExtremeSwitching X870, X690	128
	Summit X450-G2, and ExtremeSwitching X440-G2, X620	N/A
MPLS LDP transit LSPs—maximum number of MPLS transit LSPs per switch.	Summit X770, X670-G2, X460-G2, ExtremeSwitching X870, X690	4,000
	Summit X450-G2, and ExtremeSwitching X440-G2, X620	N/A
MPLS LDP egress LSPs—maximum number of MPLS egress LSPs that can terminate on a switch.	Summit X670-G2, X460-G2, X770, ExtremeSwitching X870, X690	4,000
	Summit X450-G2, and ExtremeSwitching X440-G2, X620	N/A
MPLS static egress LSPs—maximum number of static egress LSPs.	Summit X460-G2	7,116
	Summit X770, ExtremeSwitching X870, X690	8,000
	Summit X670-G2	15,308
	Summit X450-G2, and ExtremeSwitching X440-G2, X620	N/A
MPLS static ingress LSPs—maximum number of static ingress LSPs.	Summit X460-G2, ExtremeSwitching X870, X690	4,000
	Summit X770, X670-G2	2,048
	Summit X450-G2, and ExtremeSwitching X440-G2, X620	N/A
MPLS static transit LSPs—maximum number of static transit LSPs	Summit X770, X670-G2, X460-G2, ExtremeSwitching X870, X690	4,000
	Summit X450-G2, and ExtremeSwitching X440-G2, X620	N/A

Table 4: Supported Limits for 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.	Summit X460-G2, X770, X670-G2, ExtremeSwitching X870	1,200
	Summit X450-G2	512
	ExtremeSwitching X620, X440-G2	600
	ExtremeSwitching X690, X590	1,500
Multicast listener discovery (MLD)v1 subscribers—maximum number of MLDv1 subscribers per port.[n]	Summit X770, X670-G2, X450-G2, X460-G2	4,000
	ExtremeSwitching X620, X440-G2	3,500
	ExtremeSwitching X870, X690, X590	4,000
Multicast listener discovery (MLD)v1 subscribers—maximum number of MLDv1 subscribers per switch.[n]	Summit X460-G2, X450-G2, ExtremeSwitching X620, X440-G2	10,000
	Summit X770, X670-G2	30,000
	ExtremeSwitching X870, X690, X590	45,000
Multicast listener discovery (MLD)v2 subscribers—maximum number of MLDv2 subscribers per port.[n]	Summit X770, X670-G2, X460-G2, X450-G2	4,000
	ExtremeSwitching X620, X440-G2	3,500
	ExtremeSwitching X870, X690, X590	4,000
Multicast listener discovery (MLD)v2 subscribers—maximum number of MLDv2 subscribers per switch.[n]	Summit X770, X670-G2	30,000
	Summit X460-G2, X450-G2, ExtremeSwitching X620, X440-G2	10,000
	ExtremeSwitching X870, X690, X590	45,000
Multicast listener discovery (MLD)v2 maximum source per group—maximum number of source addresses per group.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	200
Multicast listener discovery (MLD) SSM-map entries—maximum number of MLD SSM mapping entries.	Summit X450-G2, X460-G2, X670-G2, X770, ExtremeSwitching X870, X690, X590	500
	ExtremeSwitching X440-G2, X620	50
Multicast listener discovery (MLD) SSM-MAP entries—maximum number of sources per group in MLD SSM mapping entries.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	50
Network Login—maximum number of clients being authenticated on MAC-based VLAN enabled ports.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	1,024
Network Login—maximum number of clients being authenticated with policy mode enabled with TCI overwrite enabled.	Summit X450-G2, X460-G2, ExtremeSwitching X590	1,024
	Summit X670-G2, X770, ExtremeSwitching X870, X690	512
	ExtremeSwitching X620, X440-G2	256

Table 4: Supported Limits for Edge License (continued)

Metric	Product	Limit
Network Login—maximum number of dynamic VLANs.	Summit X460-G2, X450-G2, X670-G2, X770, ExtremeSwitching X870, X690, X590	2,000
	ExtremeSwitching X440-G2, X620	1,024
Network Login VLAN VSAs—maximum number of VLANs a client can be authenticated on at any given time.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	10
Network Service Identifiers (NSI)/ VLAN mappings—maximum number of VLANs to NSI mappings.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	94
Node Alias—maximum number of entries per slot.	Summit X450-G2, X460-G2, X670-G2, X770 and ExtremeSwitching X620, X440-G2, X870, X690, X590	8,192
ONEPolicy Roles/Profiles—maximum number of policy roles/ profiles.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	63
ONEPolicy Rules per Role/Profile—maximum number of rules per role/policy.	Summit X450-G2, X460-G2	IPv6 rules: 256 IPv4 rules: 256 L2 Rules: 184 MAC Rules: 256
	Summit X670-G2, X770, ExtremeSwitching 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 X690, X590	IPv4 Rules: 512 IPv6 Rules: 512 MAC Rules: 512 L2 Rules: 440

Table 4: Supported Limits for Edge License (continued)

Metric	Product	Limit
ONEPolicy Authenticated Users per Switch—maximum number of authenticated users per port only with TCI-Overwrite enabled.	Summit X450-G2, X460-G2, and ExtremeSwitching X590	1,024
	Summit X670-G2, X770, ExtremeSwitching X690, X870	512
	ExtremeSwitching X620, X440-G2	256
	Stacking	Depends on the stack nodes.
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	24,576
	Summit X670-G2, X460-G2, ExtremeSwitching X870	12,288
	Summit X770, 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.	Summit X450-G2, X770	6,144
	Summit 460-G2, X670-G2, and ExtremeSwitching X870	12,288
	ExtremeSwtiching X690, X590	24,576
	ExtemeSwtiching 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.	Summit X450-G2, X460-G2, ExtremeSwitching X590	1,024
	Summit X670-G2, X770, ExtremeSwitching X870, X690	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).	Summit X450-G2, X460-G2, X670-G2, X770, ExtremeSwitching X870	952
	ExtremeSwitching X620, X440-G2	440
	ExtremeSwitching X690, X590	1,976
ONEPolicy Permit/Deny Traffic Classification Rules Types—maximum number of unique MAC permit/deny traffic classification rules types (macsource/macdest).	Summit X450-G2, X460-G2, X670-G2, X770, ExtremeSwitching X870	256
	ExtremeSwitching X620, X440-G2	N/A
	ExtremeSwitching X690, X590	512
ONEPolicy Permit/Deny Traffic Classification Rules Types—maximum number of unique IPv6 permit/deny traffic classification rules types (ipv6dest).	Summit X450-G2, X460-G2, X670-G2, X770, ExtremeSwitching X870	256
	ExtremeSwitching X620, X440-G2	N/A
	ExtremeSwitching X690, X590	512

Table 4: Supported Limits for Edge License (continued)

Metric	Product	Limit
ONEPolicy Permit/Deny Traffic Classification Rules Types—maximum number of unique IPv4 permit/deny traffic classification rules (typesipsource / ipdest / ipfrag / udpsourceportIP / udpdestportIP / tcpsourceportIP / tcpdestportIP / ipttl / iptos / iptype).	Summit X450-G2, X460-G2, X670-G2, X770, ExtremeSwitching X620, X440-G2, X870	256
	ExtremeSwitching X690, X590	512
ONEPolicy Permit/Deny Traffic Classification Rules Types—maximum number of unique Layer 2 permit/deny traffic classification rules (ethertype/port).	Summit X450-G2, X460-G2, X670-G2, X770, ExtremeSwitching X870	184
	ExtremeSwitching X620, X440-G2	184
	ExtremeSwitching X690, X590	440
Policy-based routing (PBR) redundancy—maximum number of flow-redirects.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	256 [o]
Policy-based routing (PBR) redundancy—maximum number of next hops per each flow-direct.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	32 [o]
Private VLANs—maximum number of subscribers. Assumes a minimum of one port per network and subscriber VLAN.	Summit X770	103
	Summit X670-G2	63
	Summit X460-G2	53
	Summit X450-G2	51
	ExtremeSwitching X440-G2	47
	ExtremeSwitching X620	15
	ExtremeSwitching X870	127
	ExtremeSwitching X690	71
	ExtremeSwitching X590	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.	Summit X770, X670-G2, X460-G2, ExtremeSwitching X870, X690, X590	1,024
	Summit X450-G2	510
	ExtremeSwitching X440-G2	255
	ExtremeSwitching X620	510
Private VLANs—maximum number of private VLANs in an L2-only environment.	Summit X770, X670-G2, X460-G2, ExtremeSwitching X870, X690, X590	1,280
	Summit X450-G2	597
	ExtremeSwitching X440-G2, X620	255

Table 4: Supported Limits for Edge License (continued)

Metric	Product	Limit
PTP/1588v2 Clock Ports	Summit X770, X460-G2, X670-G2	32 for boundary clock 1 for ordinary clock
	ExtremeSwitching X440-G2, X620, X870, X690, X590	N/A
PTP/1588v2 Clock Instances	Summit X770, X670-G2, X460-G2	2 combinations: • Transparent clock + ordinary clock • Transparent clock + boundary clock
	ExtremeSwitching X440-G2, X620, X870, X690, X590	N/A
PTP/1588v2 Unicast Static Slaves	Summit X770, X670-G2, X460-G2	40 entries per clock port
	ExtremeSwitching X440-G2, X620, X870, X690, X590	N/A
PTP/1588v2 Unicast Static Masters	Summit X770, X670-G2, X460-G2	10 entries per clock type
	ExtremeSwitching X440-G2, X620, X870, X690, X590	N/A
Route policies—suggested maximum number of lines in a route policy file.	Summit X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	10,000
RIP Learned Routes—maximum number of RIP routes supported without aggregation.	Summit X770, X670-G2, X460-G2, and ExtremeSwitching X440-G2, X620, X870, X690, X590	10,000
RIP interfaces on a single router—recommended maximum number of RIP routed interfaces on a switch.	Summit X670-G2, X460-G2, X770, X450-G2, ExtremeSwitching X870, X690, X590	256
	ExtremeSwitching X440-G2, X620	128
RIPng learned routes—maximum number of RIPng routes.	Summit X670-G2, X460-G2, X770, X450-G2, X870, X690, X590	3,000
	ExtremeSwitching X440-G2, X620	N/A

Table 4: Supported Limits for Edge License (continued)

Metric	Product	Limit
Spanning Tree (maximum STPDs)—maximum number of Spanning Tree Domains on port mode EMISTP. Note: STP limits are the same for all license levels.	Summit X450-G2, X770, X670-G2, X460-G2, and ExtremeSwitching X620, X870, X690, X590	64
	ExtremeSwitching X440-G2	32
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).	Summit X770, X670-G2, and ExtremeSwitching X620	256
	Summit X460-G2, X450-G2, and ExtremeSwitching X440-G2	128
	ExtremeSwitching X870, X690, X590	384
Spanning Tree—maximum number of multiple spanning tree instances (MSTI) domains.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X870, X690, X590	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.	Summit X770, X670-G2	500
	Summit X460-G2, X450-G2, ExtremeSwitching X620, X870, X690, X590	600
	ExtremeSwitching X440-G2	256
Spanning Tree—maximum number of VLANs on all MSTP instances.	Summit X770, X670-G2, X460-G2, X450-G2, ExtremeSwitching X620, X870, X690, X590	1,024
	ExtremeSwitching X440-G2	512
Spanning Tree (802.1d domains)—maximum number of 802.1d domains per port.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	1
Spanning Tree (number of ports)—maximum number of ports including all Spanning Tree domains.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X870, X690, X590	4,096
	ExtremeSwitching X440-G2	2,048
Spanning Tree (maximum VLANs)—maximum number of STP-protected VLANs (dot1d and dot1w).	Summit X770, X670-G2, X460-G2, X450-G2, and ExtremeSwitching X620, X870, X690, X590	1,024
	ExtremeSwitching X440-G2	600

Table 4: Supported Limits for Edge License (continued)

Metric	Product	Limit
SSH (number of sessions)—maximum number of simultaneous SSH sessions.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	8
Static MAC multicast FDB entries—maximum number of permanent multicast MAC entries configured into the FDB.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	1,024
Syslog servers—maximum number of simultaneous Syslog servers that are supported.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	16
Syslog targets—maximum number of configurable Syslog targets.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	16
Telnet (number of sessions)—maximum number of simultaneous Telnet sessions.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	8
Virtual routers—maximum number of user-created virtual routers that can be created on a switch.	Summit X460-G2, X670-G2, X770, X450-G2, ExtremeSwitching X870, X690, X590	63
	ExtremeSwitching X440-G2, X620	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.	Summit X460-G2, X670-G2, X770, X450-G2, ExtremeSwitching X870, X690, X590	960 *
	ExtremeSwitching X440-G2, X620	16 (local-only VRFs)
Virtual router protocols per VR—maximum number of routing protocols per VR.	Summit X460-G2, X670-G2, X770, X450-G2, ExtremeSwitching X870, X690, X590	8
	ExtremeSwitching X440-G2, X620	N/A
Virtual router protocols per switch—maximum number of VR protocols per switch.	Summit X460-G2, X670-G2, X770, X450-G2, ExtremeSwitching X870, X690, X590	64
	ExtremeSwitching X440-G2, X620	N/A
VLAN aggregation—maximum number of port-VLAN combinations on any one superVLAN and all of its subVLANs.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	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.)	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	4,094

Table 4: Supported Limits for Edge License (continued)

Metric	Product	Limit
VLANs (Layer 2)—maximum number of Layer 2 VLANs.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	4,094
VLANs (Layer 3)—maximum number of VLANs performing IPv4 and/or IPv6 routing. Excludes sub-VLANs.	Summit X460-G2, X770, X670-G2, X450-G2, ExtremeSwitching X870, X690, X590	2,048
	ExtremeSwitching X440-G2, X620	510
VLANs (maximum active port-based)—maximum active ports per VLAN when 4,094 VLANs are configured with default license.	Summit X670-G2, ExtremeSwitching X870, X690, X590	32
	ExtremeSwitching X440-G2	28
	Summit X460-G2, X770	26
	ExtremeSwitching X620	16
	Summit X450-G2	29
	Summit X460-G2	24
VLANs (maximum active protocol-sensitive filters)—number of simultaneously active protocol filters in the switch.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2. X870, X690, X590	16
VLAN translation—maximum number of translation VLANs. Assumes a minimum of one port per translation and member VLAN.	Summit X770	103
	Summit X670-G2	63
	Summit X460-G2	53
	Summit X450-G2	51
	ExtremeSwitching X620	15
	ExtremeSwitching X440-G2	47
	ExtremeSwitching X870	127
	ExtremeSwitching X690	71
	ExtremeSwitching X590	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.	Summit X770, X670-G2, ExtremeSwitching X870, X690, X590	1,024
	Summit X450-G2	512
	ExtremeSwitching X620	510
	ExtremeSwitching X440-G2	255
VLAN translation—maximum number of translation VLAN pairs in an L2-only environment.	Summit X450-G2, X770, X670-G2, X460-G2, ExtremeSwitching X870, X690, X590	2,046
	ExtremeSwitching X440-G2, X620	255

Table 4: 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.	Summit X460-G2, X670-G2, X770, X450-G2, and ExtremeSwitching X440-G2, X620, X870, X690, X590	10 with 100 DACLs
XNV authentication—maximum number of VMs that can be processed (combination of local and network VMs).	Summit X460-G2, X670-G2, X770, ExtremeSwitching X870, X690, X590	2,048
	Summit X450-G2, and ExtremeSwitching X440-G2, X620	1,024
XNV database entries—maximum number of VM database entries (combination of local and network VMs).	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	16,000
XNV database entries—maximum number of VPP database entries (combination of local and network VPPs).	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	2,048
XNV dynamic VLAN—Maximum number of dynamic VLANs created (from VPPs /local VMs).	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	2,048
XNV local VPPs—maximum number of XNV local VPPs.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	2,048 ingress 512 egress
XNV policies/dynamic ACLs—maximum number of policies/ dynamic ACLs that can be configured per VPP.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	8 ingress 4 egress
XNV network VPPs—maximum number of XNV network VPPs.[p]	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	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 5: Supported Limits for Advanced Edge License

Metric	Product	Limit
BGP auto-peering—maximum number of auto-peering nodes and VTEPs.	Summit X670-G2, X770, ExtremeSwitching X690, X870, X590	64
BGP auto-peering attached IPv4 hosts— maximum number of attached IPv4 hosts.	Summit X670-G2, X770	16,000
	ExtremeSwitching X870, X690, X590	64,000
BGP auto-peering attached IPv6 hosts— maximum number of attached IPv6 hosts.	Summit X670-G2, X770	254
	ExtremeSwitching X870, X690, X590	8,000
BGP auto-peering ECMP—maximum number equal cost multipath for auto-peering. Note: * Subject to the limitation imposed by the number of physical ports on a switch.	Summit X670-G2, X770, ExtremeSwitching X690, X870, X590	16*
BGP auto-peering maximum IPv4 prefixes with ECMP—Maximum number of IPv4 Network prefixes with ECMP.	Summit X670-G2, X770, ExtremeSwitching X690, X870, X590	64,000
BGP auto-peering maximum IPv6 prefixes with ECMP—Maximum number of IPv6 Network prefixes with ECMP.	Summit X670-G2, X770, ExtremeSwitching X690, X870, X590	8,000
BGP auto-peering MLAG peers—maximum MLAG peers per AutoBGP node.	Summit X670-G2, X770, ExtremeSwitching X690, X870, X590	1
BGP auto-peering VRFs—maximum number of VRFs.	Summit X670-G2, X770, ExtremeSwitching X690, X870, X590	64
BGP auto-peering EVPN instances—maximum EVPN instances.	Summit X670-G2, X770, ExtremeSwitching X690, X870, X590	4,096
BGP auto-peering asymmetrical routing tenant VLANs—maximum number of tenant VLANs supporting asymmetric routing.	Summit X670-G2, X770, ExtremeSwitching X690, X870, X590	1,024

Table 5: Supported Limits for Advanced Edge License (continued)

Metric	Product	Limit
EAPS domains—maximum number of EAPS domains. Note: An EAPS ring that is being spatially reused cannot have more than four configured EAPS domains.	ExtremeSwitching X870, X690, X590	128
	Summit X670-G2, X450-G2, X460-G2, X770	64
	ExtremeSwitching X440-G2, X620	32
EAPSv2 protected VLANs—maximum number of protected VLANs.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X440-G2, X620	500
	ExtremeSwitching X870, X690, X590	2,000
ERPS domains—maximum number of ERPS domains without CFM configured.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	32
ERPS domains—maximum number of ERPS domains with CFM configured.	Summit X450-G2, X670-G2, X770, and ExtremeSwitching X620, X870, X690, X590	16
	Summit X460-G2	32
ERPSv1 protected VLANs—maximum number of protected VLANs.	Summit X450-G2, X460-G2, X670-G2, and ExtremeSwitching X870, X690, X590	2,000
	Summit X770, ExtremeSwitching X620, X440-G2	1,000
ERPSv2 protected VLANs—maximum number of protected VLANs.	Summit X450-G2, X460-G2, X670-G2, and ExtremeSwitching X870, X690, X590	2,000
	Summit X770, ExtremeSwitching X620, X440-G2	500
ESRP groups—maximum number of ESRP groups	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X440-G2, X620, X870, X690, X590	32
ESRP domains—maximum number of ESRP domains.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	64
ESRP L2 VLANs—maximum number of ESRP VLANs without an IP address configured.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	1,000

Table 5: Supported Limits for Advanced Edge License (continued)

Metric	Product	Limit
ESRP L3 VLANs—maximum number of ESRP VLANs with an IP address configured.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	511
ESRP (maximum ping tracks)—maximum number of ping tracks per VLAN.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	8
ESRP (IP route tracks)—maximum IP route tracks per VLAN.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	8
ESRP (VLAN tracks)—maximum number of VLAN tracks per VLAN.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	1
OSPFv2/v3 ECMP—maximum number of equal cost multipath OSPFv2 and OSPFv3.	Summit X460-G2, X670-G2, X770, X450-G2, ExtremeSwitching X870, X690, X590	64
	ExtremeSwitching X620	4
	ExtremeSwitching X440-G2	N/A
OSPFv2 areas—as an ABR, how many OSPF areas are supported within the same switch.	Summit X460-G2, X670-G2, X770, ExtremeSwitching X870, X690, X590	8
	Summit X450-G2, ExtremeSwitching X440-G2, X620	4
OSPFv2 external routes—recommended maximum number of external routes contained in an OSPF LSDB.	ExtremeSwitching X870, X690, X590	10,000
	Summit X770, X670-G2, X460-G2	5,000
	Summit X450-G2, ExtremeSwitching 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	4,000
	Summit X670-G2, X460-G2, X770	2,000
	Summit X450-G2, and ExtremeSwitching X440-G2, X620	1,000

Table 5: Supported Limits for Advanced Edge License (continued)

Metric	Product	Limit
OSPFv2 interfaces—recommended maximum number of OSPF interfaces on a switch (active interfaces only).	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	4
OSPFv2 links—maximum number of links in the router LSA.	Summit X460-G2, X670-G2, ExtremeSwitching X870, X690, X590	400
	Summit X450-G2, and ExtremeSwitching X620, X440-G2	4
	Summit X770	419
OSPFv2 neighbors—maximum number of supported OSPF adjacencies.	Summit X450-G2, X770, X670-G2, X460-G2, and ExtremeSwitching X440-G2, X620, X870, X690, X590	4
OSPFv2 routers in a single area—recommended maximum number of routers in a single OSPF area.	ExtremeSwitching X870, X690, X590	100
	Summit X770, X670-G2, X460-G2	50
	Summit X450-G2, ExtremeSwitching X440-G2, X620	4
OSPFv2 virtual links—maximum number of supported OSPF virtual links.	Summit X460-G2, X670-G2, X770, ExtremeSwitching X870, X690, X590	32
	Summit X450-G2, and ExtremeSwitching X440-G2, X620	4
OSPFv3 areas—as an ABR, the maximum number of supported OSPFv3 areas.	ExtremeSwitching X870, X690, X590	100
	Summit X460-G2, X670-G2, X770	16
	Summit X450-G2, ExtremeSwitching X440-G2, X620	4
OSPFv3 external routes—recommended maximum number of external routes.	Summit X770, X670-G2, X460-G2, ExtremeSwitching X870, X690, X590	10,000
	Summit X450-G2, ExtremeSwitching X440-G2, X620	1,200

Table 5: Supported Limits for Advanced Edge License (continued)

Metric	Product	Limit
OSPFv3 inter- or intra-area routes—recommended maximum number of inter- or intra-area routes.	ExtremeSwitching X870, X690, X590	4.000
	Summit X770, X670-G2, X460-G2	3,000
	Summit X450-G2, ExtremeSwitching X440-G2, X620	500
OSPFv3 interfaces—maximum number of OSPFv3 interfaces.	Summit X770, X670-G2, X460-G2, X450-G2, ExtremeSwitching X870, X690, X440-G2, X620, X590	4
OSPFv3 neighbors—maximum number of OSPFv3 neighbors.	Summit X450-G2, X770, X670-G2, X460-G2, ExtremeSwitching X870, X690, X440-G2, X620, X590	4
OSPFv3 virtual links—maximum number of OSPFv3 virtual links supported.	Summit X770, X670-G2, X460-G2, ExtremeSwitching X870, X690, X590	16
	Summit X450-G2, ExtremeSwitching X440-G2, X620	4
OVSDB Manager Connections—Maximum number of connections to managers that can be configured (either of TCP, PTCP, SSL, or PSSL).	Summit X770, X670-G2, ExtremeSwitching X870, X690, X590	8
	Smmit X450-G2	N/A
OVSDB Managed Switches—Maximum number of OVSDB-managed switches.	Summit X770, X670-G2, ExtremeSwitching X870, X690, X590	1
	Smmit X450-G2	N/A
PIM IPv4 (maximum interfaces)—maximum number of PIM active interfaces.	Summit X460-G2, X670-G2, X770, X450-G2, ExtremeSwitching X870, X440-G2, X620, X690, X590	4
PIM IPv4 Limits—maximum number of multicast groups per dynamic rendezvous point.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	180
PIM IPv4 Limits—maximum number of multicast groups per static rendezvous point.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	3,000 (depends on policy file limits)

Table 5: Supported Limits for Advanced Edge License (continued)

Metric	Product	Limit
PIM IPv4 Limits—maximum number of multicast sources per group.	Summit X460-G2, X670-G2, X770, X450-G2, ExtremeSwitching X870, X690, X590	5,000
	ExtremeSwitching X440-G2, X620	1,500
PIM IPv4 Limits—maximum number of dynamic rendezvous points per multicast group.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	145
PIM IPv4 Limits—static rendezvous points.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	32
PIM IPv6 (maximum interfaces)—maximum number of PIM active interfaces.	Summit X460-G2, X670-G2, X770, X450-G2, ExtremeSwitching X870, X440-G2, X620, X690, X590	4
PIM IPv6 Limits—maximum number of multicast sources per group.	Summit X460-G2, X670-G2, X770, ExtremeSwitching X870, X690, X590	1,750
	Summit X450-G2	1,500
	ExtremeSwitching X440-G2, X620	550
PIM IPv6 Limits—maximum number of multicast groups per dynamic rendezvous point.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	70
PIM IPv6 Limits—maximum number of multicast groups per static rendezvous point.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	3,000 (depends on policy file limits)
PIM IPv6 Limits—maximum number of dynamic rendezvous points per multicast group.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	64
PIM IPv6 Limits—maximum number of secondary address per interface.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	70
PIM IPv6 Limits—static rendezvous points.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	32

Table 5: Supported Limits for Advanced Edge License (continued)

Metric	Product	Limit
Port-specific VLAN tags—maximum number of port-specific VLAN tags.	Summit X460-G2, X670-G2, X770, ExtremeSwitching X870, X690, X590	1,023
	Summit X450-G2, and ExtremeSwitching X440-G2, X620	N/A
Port-specific VLAN tags—maximum number of port-specific VLAN tag ports.	Summit X770, X670-G2	4,000
	Summit X460-G2, ExtremeSwitching X870, X690, X590	4,000
	Summit X450-G2, and ExtremeSwitching 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):	
	Summit X770, X670-G2, X460-G2, X450-G2, and ExtremeSwitching X870, X690, X590	511
	ExtremeSwitching X440-G2, X620	128
	Scaled Mode (with groups):	
	Summit X770, X670-G2, X460-G2, X450-G2, and ExtremeSwitching X870, X690, X590	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):	
	Summit X770, X670-G2, X460-G2, X450-G2, and ExtremeSwitching X870, X690, X590	511
	ExtremeSwitching X440-G2, X620	128
	Scaled Mode (with groups):	
	Summit X770, X670-G2, X460-G2, X450-G2, and ExtremeSwitching X870, X690, X590	2,048
	ExtremeSwitching X440-G2, X620	128

Table 5: Supported Limits for Advanced Edge License (continued)

Metric	Product	Limit
VRRP (v2/v3-IPv4/IPv6) (maximum VRID)—maximum number of unique VRID numbers per switch.	Summit X770, X670-G2, X460-G2, X450-G2 and ExtremeSwitching X440-G2, X620, X870, X690, X590 Note: With Advanced Edge license or higher.	255
VRRP (v2/v3-IPv4/IPv6) (maximum VRIDs per VLAN)—maximum number of VRIDs per VLAN.	Summit X770, X670-G2, X460-G2, X450-G2 and ExtremeSwitching X440-G2, X620, X870, X690, X590 Note: With Advanced Edge license or higher.	255
VRRP (v2/v3-IPv4/IPv6) (maximum ping tracks)—maximum number of ping tracks per VLAN.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590 Note: With Advanced Edge license or higher.	8
VRRP (maximum ping tracks)—maximum number of ping tracks per VRRP Instance under 128 VRRP instances, with Advanced Edge license or higher.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	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.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	8 (20 centisecond or 1 second hello interval)
VRRP (v2/v3-IPv4/IPv6) (maximum iproute tracks)—maximum number of IP route tracks per VLAN.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	8
VRRP (v2/v3-IPv4/IPv6)—maximum number of VLAN tracks per VLAN.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X620, X440-G2, X870, X690, X590	8

Table 5: Supported Limits for Advanced Edge License (continued)

Metric	Product	Limit
VXLAN—maximum virtual networks. Note: Every VPLS instance/ PSTag VLAN reduces this limit by 1. Note: Assumption is all BUM (broadcast/unknown-unicast/ multicast) FDB entries are pointing to the same set of RTEPs when all VNETs use explicit flooding. Depends on whether all VNETs use standard or explicit and the number of tenant VLAN ports.	Summit X670-G2, X770, and ExtremeSwiching X870, X690, X590	2,048–4,000
	Summit X460-G2, X450-G2, and ExtremeSwitching X440-G2, X620	N/A
VXLAN—maximum tenant VLANs plus port combinations Note: Every (VPLS/PSTag VLAN) + port reduces the limit by 1.	Summit X670-G2, X770, and ExtremeSwiching X870, X690, X590	4,096
	Summit X460-G2, X450-G2, and ExtremeSwitching X440-G2, X620	N/A
VXLAN—maximum static MAC to IP bindings. Note: Every FDB entry configured reduces this limit by 1.	Summit X670-G2, X770, and ExtremeSwiching X870, X690, X590	64,000
	Summit X460-G2, X450-G2, and ExtremeSwitching X440-G2, X620	N/A
VXLAN—maximum RTEP IP addresses	Summit X670-G2, X770, and ExtremeSwitching X870, X690, X590	512
	Summit X460-G2, X450-G2, and ExtremeSwitching X440-G2, X620	N/A
VXLAN—maximum virtual networks with dynamic learning and OSPF extensions for VXLAN	Summit X670-G2, X770, and ExtremeSwitching X870, X690, X590	4,000
	Summit X460-G2, X450-G2, and ExtremeSwitching X440-G2, X620	N/A

Supported Limits for Core License

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

Table 6: Supported Limits for Core License

Metric	Product	Limit
BGP (aggregates)—maximum number of BGP aggregates.	Summit X460-G2, X670-G2, X770, ExtremeSwitching X870, X690, X590	256
	Summit X450-G2	204
BGP (networks)—maximum number of BGP networks.	Summit X460-G2, X670-G2, X770, ExtremeSwitching X870, X690, X590	1,024
	Summit X450-G2	820
BGP (peers)—maximum number of BGP peers. Note: With default keepalive and hold timers.	Summit X460-G2, X670-G2, X770, ExtremeSwitching X870	128
	ExtremeSwitching X690, X590	300
	Summit X450-G2	100
BGP (peer groups)—maximum number of BGP peer groups.	Summit X460-G2, X670-G2, X770, ExtremeSwitching X870, X690, X590	64
	Summit X450-G2	50
BGP (policy entries)—maximum number of BGP policy entries per route policy.	Summit X460-G2, X670-G2, X770, ExtremeSwitching X870, X690, X590	256
	Summit X450-G2	204
BGP (policy statements)—maximum number of BGP policy statements per route policy.	Summit X460-G2, X670-G2, X770, ExtremeSwitching X870, X690, X590	1,024
	Summit X450-G2	820
BGP multicast address-family routes—maximum number of multicast address-family routes.	Summit X460-G2, X670-G2, X770, and ExtremeSwitching X870, X690, X590	25,000
	Summit X450-G2	20,000
BGP (unicast address-family routes)—maximum number of unicast address-family routes.	Summit X460-G2, X670-G2, X770, ExtremeSwitching X870, X690, X590 (at default)	25,000
	ExtremeSwitching X870, X690, X590 (with ALPM enabled)	100,000
	Summit X450-G2	20,000
BGP (non-unique routes)—maximum number of non-unique BGP routes.	Summit X460-G2, X670-G2, X770, ExtremeSwitching X870, X690, X590	25,000
	Summit X450-G2	20,000

Table 6: Supported Limits for Core License (continued)

Metric	Product	Limit
BGP ECMP—maximum number of equal cost multipath for BGP and BGPv6.	Summit X460-G2, X670-G2, X770, ExtremeSwitching X870, X690, X590	2, 4, 8, 16, 32, or 64
	Summit X450-G2	64
BGPv6 (unicast address-family routes)—maximum number of unicast address family routes.	Summit X460-G2	6,000
	Summit X670-G2, X770	8,000
	ExtremeSwitching X870, X690, X590	10,000
	ExtremeSwitching X870, X690 (with ALPM enabled)	100,000
	Summit X450-G2	4,800
BGPv6 (non-unique routes)—maximum number of non-unique BGP routes.	Summit X460-G2	18,000
	Summit X670-G2, X770, ExtremeSwitching X870, X690, X590	24,000
	Summit X450-G2	14,000
GRE Tunnels—maximum number of GRE tunnels.	Summit X460-G2, X670-G2, X770, X450-G2, and ExtremeSwitching X870, X690, X590	255
	ExtremeSwitching X620, X440G2	N/A
IS-IS adjacencies—maximum number of supported IS-IS adjacencies.	Summit X460-G2, X670-G2, X770, and ExtremeSwitching X870, X690, X590	128
	Summit X450-G2	N/A
IS-IS ECMP—maximum number of equal cost multipath for IS-IS.	Summit X460-G2, X670-G2, X770, and ExtremeSwitching X870, X690, X590	2, 4, or 8
	Summit X450-G2	N/A
IS-IS interfaces—maximum number of interfaces that can support IS-IS.	Summit X460-G2, X670-G2, X770, and ExtremeSwitching X870, X690, X590	255
	Summit X450-G2	N/A
IS-IS routers in an area—recommended maximum number of IS-IS routers in an area.	Summit X460-G2, X670-G2, X770, and ExtremeSwitching X870, X690, X590	256
	Summit X450-G2	N/A

Table 6: Supported Limits for Core License (continued)

Metric	Product	Limit
IS-IS route origination—recommended maximum number of routes that can be originated by an IS-IS node.	Summit X460-G2, X670-G2, X770, and ExtremeSwitching X870, X690, X590	20,000
	Summit 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.	Summit X460-G2, X670-G2, X770, and ExtremeSwitching X870, X690, X590	25,000
	Summit X450-G2	N/A
IS-IS IPv4 L2 routes—recommended maximum number of IS-IS Level 2 routes.	Summit X460-G2, X670-G2, X770, and ExtremeSwitching X870, X690, X590	25,000
	Summit 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.	Summit X460-G2, X670-G2, X770, and ExtremeSwitching X870, X690, X590	20,000
	Summit 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.	Summit X460-G2, X670-G2, X770, and ExtremeSwitching X870, X690, X590	10,000
	Summit X450-G2	N/A
IS-IS IPv6 L2 routes—recommended maximum number of IS-IS Level 2 routes.	Summit X460-G2, X670-G2, X770, and ExtremeSwitching X870, X690, X590	10,000
	Summit X450-G2	N/A
IS-IS IPv6 L1 routes in an L1/L2 router—recommended maximum number of IS-IS Level 1 routes in a L1/l2 router.	Summit X460-G2, X670-G2, X770, and ExtremeSwitching X870, X690, X590	10,000
	Summit 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.	Summit X460-G2, X670-G2, X770, and ExtremeSwitching X870, X690, X590	20,000
	Summit 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.	Summit X460-G2, X670-G2, X770, and ExtremeSwitching X870, X690, X590	20,000
	Summit X450-G2	N/A

Table 6: 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.	Summit X460-G2, X670-G2, X770, and ExtremeSwitching X870, X690, X590	20,000
	Summit X450-G2	N/A
MSDP active peers—maximum number of active MSDP peers.	Summit X450-G2, X770, X670-G2, X460-G2, ExtremeSwitching X870, X690, X590	64
MSDP SA cache entries—maximum number of entries in SA cache.	Summit X670-G2, X770, ExtremeSwitching X690, X590	14,000
	Summit X460-G2	10,000
	ExtremeSwitching X870	11,000
	Summit X450-G2	8,000
MSDP maximum mesh groups—maximum number of MSDP mesh groups.	Summit X450-G2, X770, X670-G2, X460-G2, ExtremeSwitching X870, X690, X590	16
OSPFv2/v3 ECMP—maximum number of equal cost multipath OSPFv2 and OSPFv3.	Summit X460-G2, X670-G2, X770, X450-G2, ExtremeSwitching X870, X690, X590	64
OSPFv2 areas—as an ABR, how many OSPF areas are supported within the same switch.	Summit X450-G2, X460-G2, X670-G2, X770, ExtremeSwitching X870, X690, X590	8
OSPFv2 external routes—recommended maximum number of external routes contained in an OSPF LSDB.	ExtremeSwitching X870, X690, X590	10,000
	Summit X770, X670-G2, X460-G2	5,000
	Summit 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	4,000
	Summit X670-G2, X460-G2, X770	2,000
	Summit X450-G2	1,600
OSPFv2 interfaces—recommended maximum number of OSPF interfaces on a switch (active interfaces only).	Summit X460-G2, X670-G2, X770, ExtremeSwitching X870, X690, X590	400
	Summit X450-G2	320

Table 6: Supported Limits for Core License (continued)

Metric	Product	Limit
OSPFv2 links—maximum number of links in the router LSA.	Summit X460-G2, X670-G2, ExtremeSwitching X870, X690, X590	400
	Summit X770	419
	Summit X450-G2	320
OSPFv2 neighbors—maximum number of supported OSPF adjacencies.	Summit X770, X670-G2, X460-G2, ExtremeSwitching X870, X690, X590	128
	Summit X450-G2	96
OSPFv2 routers in a single area—recommended maximum number of routers in a single OSPF area.	ExtremeSwitching X870, X690, X590	100
	Summit X770, X670-G2, X460-G2	50
	Summit X450-G2	40
OSPFv2 virtual links—maximum number of supported OSPF virtual links.	Summit X460-G2, X670-G2, X770, ExtremeSwitching X870, X690, X590	32
	Summit X450-G2	25
OSPFv3 areas—as an ABR, the maximum number of supported OSPFv3 areas.	ExtremeSwitching X870, X690, X590	100
	Summit X460-G2, X670-G2, X770	16
	Summit X450-G2	12
OSPFv3 external routes—recommended maximum number of external routes.	Summit X770, X670-G2, X460-G2, ExtremeSwitching X870, X690, X590	10,000
	Summit X450-G2	7,500
OSPFv3 inter- or intra-area routes—recommended maximum number of inter- or intra-area routes.	ExtremeSwitching X870, X690, X590	4.000
	Summit X770, X670-G2, X460-G2	3,000
	Summit X450-G2	500
OSPFv3 interfaces—maximum number of OSPFv3 interfaces.	Summit X770	128
	Summit X670-G2, X460-G2, ExtremeSwitching X870, X690, X590	256
	Summit X450-G2	192
OSPFv3 neighbors—maximum number of OSPFv3 neighbors.	Summit X770, X670-G2, X460-G2, ExtremeSwitching X870, X690, X590	64
	Summit X450-G2	48

Table 6: Supported Limits for Core License (continued)

Metric	Product	Limit
OSPFv3 virtual links—maximum number of OSPFv3 virtual links supported.	Summit X770, X670-G2, X460-G2, ExtremeSwitching X870, X690, X590	16
	Summit X450-G2	12
PIM IPv4 (maximum interfaces)—maximum number of PIM active interfaces.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X870, X690, X590	256
PIM IPv4 Limits—maximum number of multicast groups per dynamic rendezvous point.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X870, X690, X590	180
PIM IPv4 Limits—maximum number of multicast groups per static rendezvous point.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X870, X690, X590	3,000 (depends on policy file limits)
PIM IPv4 Limits—maximum number of multicast sources per group.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X870, X690, X590	5,000
PIM IPv4 Limits—maximum number of dynamic rendezvous points per multicast group.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X870, X690, X590	145
PIM IPv4 Limits—static rendezvous points.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X870, X690, X590	32
PIM IPv6 (maximum interfaces)—maximum number of PIM active interfaces.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X870, X690, X590	256
PIM IPv6 Limits—maximum number of multicast sources per group.	Summit X460-G2, X670-G2, X770, and ExtremeSwitching X870, X690, X590	2,500
	Summit X450-G2,	1,500
PIM IPv6 Limits—maximum number of multicast groups per dynamic rendezvous point.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X870, X690, X590	70
PIM IPv6 Limits—maximum number of multicast groups per static rendezvous point.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X870, X690, X590	3,000 (depends on policy file limits)

Table 6: Supported Limits for Core License (continued)

Metric	Product	Limit
PIM IPv6 Limits—maximum number of dynamic rendezvous points per multicast group.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X870, X690, X590	64
PIM IPv6 Limits—maximum number of secondary address per interface.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X870, X690, X590	70
PIM IPv6 Limits—static rendezvous points.	Summit X450-G2, X460-G2, X670-G2, X770, and ExtremeSwitching X870, X690, X590	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 would be appropriately lessened.
[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

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Known Behaviors on page 68
Resolved Issues in ExtremeXOS 22.7.2-Patch1-3 on page 68
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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 22.7.2-Patch1-3.

Table 7: Open Issues, Platform-Specific, and Feature Change Requests (CRs)

CR Number	Description
Extended Edge Switching	
xos0074639	With multiple bridge port extenders (BPEs) attached to a partitioned port, starting Extended Edge Switching full automation by running either the `unconfigure switch` or `unconfigure switch` **`all`** command removes the partitioned port configuration, and thus full automation is not triggered, and the Extended Edge Switching topology is not created. Workaround: Do not attach BPEs to partitioned ports, or use partial automation or manual configuration to create the Extended Edge Switching topology.

Table 7: Open Issues, Platform-Specific, and Feature Change Requests (CRs) (continued)

CR Number	Description
xos0075704	On an Extended Edge Switching ring with redundant controlling bridges (CBs) with cross-connect MLAGs and an extended port LAG with LAG members from two different cascades, if a CB loses connections to both cascades, then flood traffic from the isolated CB is not sent to any member of the extended port LAG.
Policy	
xos0075474	On an MLAG peer, if an explicit port classification forward rule is configured on an MLAG port, it does not work as expected. Workaround: Configure the same rule on the ISC port.

Known Behaviors

The following are limitations in ExtremeXOS system architecture that have yet to be resolved.

Table 8: Known Issues, Platform-Specific, and Feature Change Requests (CRs)

CR Number	Description
VRRP	
xos0075004	With policy profile 63 configured and actively used, VRRP incorrectly persists in master state after changing priority in VRRP backup node, enabling/disabling fabric routing on VRRP backup node, and then rebooting. Other policy profiles (1 through 62) do not cause this issue.

Resolved Issues in ExtremeXOS 22.7.2-Patch1-3

The following issues were resolved in ExtremeXOS 22.7.2-Patch1-3. ExtremeXOS 22.7.2-Patch1-3 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 22.7, and ExtremeXOS 22.7.2. For information about those fixes, see the release notes for the specific release.

Table 9: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 22.7.2-Patch1-3

Defect ID	Description
General	
EXOS-24110	Combining MLAG and VLAN-translation can cause reachability issues.
EXOS-24220	SNMP walk fails when trap receiver is configured using SNMP community strings starting with "v,w,x,y,z".

Table 9: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 22.7.2-Patch1-3 (continued)

Defect ID	Description
EXOS-24136	Convergence takes 6 seconds when port down/up coincides with optics polling interval (once in 300 secs).
EXOS-24138	Hardware-assist BFD sessions go down after changing the egress VLAN tag.
EXOS-19921	In policy mode with NSI mapping configured and a client authenticated on a port, if the port is manually added to authentication (destination) VLAN and another client is authenticated on the same port, then continuous flush occurs.
EXOS-26203	BGP route is showing the incorrect gateway after network events, such as link flap, underlying LSP flap, or OSPF route convergence.
EXOS-24285	Configuring ELRP on a very large number of ports results in rejection of the command with the message “Configuration reply is too big”.
EXOS-24134	FDB entries learned on NetLogin-enabled bridge port extender (BPE) ports point to CPU, causing traffic loss.
EXOS-24129	Add the ability to disable and enable DDMI (Digital Diagnostic Monitor Interface) polling using the CLI.
EXOS-23879	VLAN process ends unexpectedly while doing SNMP polling on EXTREME-VLAN-PORT MIB.
ExtremeSwitching X460-G2	
EXOS-24116	BFD sessions on the Default VLAN go down after enabling hardware-assistance.
SummitStack	
EXOS-24127	Synchronize stacking command fails to synchronize the stack.
EXOS-24060	On SummitStacks, when port is in software learning mode, FDB is not programmed in hardware on all slots resulting in flooding.
EXOS-26220	On SummitStacks with PoE-capable switches, the PoE process ends unexpectedly after running the `show tech` command.
EXOS-20360	Occasionally, FDB is not learned after stack failovers on ExtremeSwitching X465, X590, X690, X695, and X870 series switches.
ExtremeSwitching X690	
EXOS-24098	With a loopback port disabled, BFD sessions remain in the init state when a switch is rebooted.

Resolved Issues in ExtremeXOS 22.7.2

The following issues were resolved in ExtremeXOS 22.7.2. ExtremeXOS 22.7.2 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, and ExtremeXOS 22.7. For information about those fixes, see the release notes for the specific release.

Table 10: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 22.7.2

CR Number	Description
General	
xos0069922	When deleting IPMC entries, multicast traffic loss occurs with the error message `<Erro:HAL.IPv4Mc.Error>`.
xos0077793	PIM routers should accept include-mode registers as per RFC compliance.
xos0077918	Policy with attribute "replace-vlan-id" fails to be installed sometimes and the error message 'No resources for the "replace-vlan-id" option' appears.
xos0078240	MIB object "IfName" is not sent in Link up/Link down SNMP traps.
xos0078261	On SummitStacks, when check pointing CFM messages in backup node, dot1ag process ends unexpectedly at random times.
xos0078271	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.
xos0078454	LLDP packets are not sent and received after successful NetLogin authentication.
xos0078535	Dynamic ACL created to block the MAC address for 60 seconds is not deleted after a timeout of 60 seconds.
xos0078564	Need to allow RESTCONF GET requests for user-level accounts.
xos0075986	Kernel error occurs when deleting a port from VRRP VLANs.
xos0077207	OSPF sends same instance of LSA twice in single LS update resulting in traffic loss.
xos0077246	With SRP configured on VPLS service VMAN, when primary or secondary port goes down, the other port is not passing traffic through the tunnel.
xos0077494	After running a switch for 497 days, SNMP process ends unexpectedly with signal 6.
xos0078005	With NetLogin multiauth mode configured, MAC users are logged as "Unknown" user during un-authentication.
xos0078314	On Extended Edge Switching topologies, the output of the `show port description` command displays truncated port numbers of extended slots.
xos0078622	Need a mechanism to bring up MLAG ports in a staggered manner (see New and Corrected Features in ExtremeXOS 22.7.2 on page 12).
xos0076565	In WMLAG setups, multicast packets are not forwarded across the ISC from one MLAG peer to other MLAG peer.
xos0078489	When refreshing policy files, process HAL ends unexpectedly with signal 11.
xos0078642	During bootup, the MLAG reload delay feature enables administratively disabled ports.

Resolved Issues in ExtremeXOS 22.7.1-Patch1-24

The following issues were resolved in ExtremeXOS 22.7.1-Patch1-24. ExtremeXOS 22.7.1-Patch1-24 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, and ExtremeXOS 22.7. For information about those fixes, see the release notes for the specific release.

Table 11: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 22.7.1-Patch1-24

CR Number	Description
General	
xos0068638	If NetLogin authentication mode option is selected, the web authentication commands should fail and show the error message "ERROR: web-based and "authentication optional" cannot be enabled simultaneously on a port".
xos0076140	IPv6 ping is fails over PSTag.
xos0076261	With NetLogin authentication mode optional configured, the first packet used for for authentication is not forwarded/flooded to other ports in the VLAN.
xos0076294	Memory leak occurs in thttpd process while accessing network web login page, causing a switch reboot.
xos0076372	NetLogin users session is not cleared on a port even after the port is moved to blocking state by STP.
xos0076373	Unable to create multiple authentication failure VLANs.
xos0076851	On MLAG topologies after an ARP refresh, unicast ARP response is flooded.
xos0074324	After running the switch for long time with policy and mirroring enabled, memory leak occurs in hal process.
xos0075519	A policy admin-profile macsource rule might be removed by a mac move condition or by clearing users with the mib etsysMultiAuthStationClearUsers.
xos0074772	Policy process ends unexpectedly after configuring authentication mode as optional through SNMP MIB or Extreme Management Center when NetLogin web-based authentication is enabled.
xos0074107	Kernel oops occurs with continuous addition and deletion of policy rule.
xos0074713	Authentication type appears as "Yes, Radius" for Dot1x users even though the users have been moved to the Service-Unavailable VLAN due to no RADIUS availability.
xos0077218	When NetLogin is enabled, LLDP Neighbors are not discovered on LAG ports.
xos0076850	After a stack failover, FDB and ARP entries are not removed on MLAG peers.

Table 11: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 22.7.1-Patch1-24 (continued)

CR Number	Description
xos0076413	After disabling sharing, the following error message appears: `<Crit:VSM.ParmInv> Slot-2: Argument Ingress Port Instance has an invalid.`
xos0073815	NetLogin Dot1x authentication fails when limit learning is configured on port-based VLANs.
ExtremeSwitching X870 Series Switches	
xos0077740	On ExtremeSwitching X870 series switches, hardware VLAN tables are not updated correctly when enabling OpenFlow.
xos0077775	On ExtremeSwitching X870 series switches, Extreme-certified optics are detected as "unknown".
ExtremeSwitching X690 Series Switches	
xos0076930	On ExtremeSwitching X690 series switches, even though "Auto-negotiation OFF" is configured on a port, the port defaults to "Auto-negotiation ON" at the hardware level after a reboot.
SummitStack	
xos0076321	ELRP takes 3–15 seconds to disable a loop detected on a port on a standby node.
xos0072797	When upgrading a stack to ExtremeXOS 22.7, FDB filter checkpoint failed error occurs.
xos0076395	In policy, mac-based feature is not working after unconfiguring, and then reconfiguring a slot where the client is connected.
xos0075517	Running the command `show policy convergence-endpoint connections ports all` produces a Python error message on the backup slot.
xos0074778	Policy process ends unexpectedly with continuous traffic with a scaled number of users.
Extended Edge Switching	
xos0076561	VPLAG member port traffic is dropped when there is client traffic on the LAG master port.
xos0075921	In Extended Edge Switching, NetLogin mac users are not checkpointed to non-authenticator on multi-authication ports after runnning the command `clear netlogin state agent mac` on authenticator.
xos0076360	Dot1x client is not authenticated on tagged port on Extended Edge Switching ring.
xos0075344	FDB entries are not removed from hardware table after disabling, and then enabling, policy causing MAC addition to fail on subsequent user authentication.
xos0076492	In Extended Edge Switching with MLAG ring topology, FDB is not learned for one-armed MLAG slot after master failover or reboot.
xos0075808	With orchestration mode enabled, the command "restart process vsm" does not restart the process.

Resolved Issues in ExtremeXOS 22.7.1-Patch1-21

The following issues were resolved in ExtremeXOS 22.7.1-Patch1-21. ExtremeXOS 22.7.1-Patch1-21 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, and ExtremeXOS 22.7. For information about those fixes, see the release notes for the specific release.

Table 12: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 22.7.1-Patch1-21

CR Number	Description
General	
xos0077142	SNMP get on extremeStackMemberSlotId/extremeStackMemberSlotId OIDs returns incorrect value(0).
xos0076075	A collection of changes intended to improve code quality of OTM and McMgr processes.
xos0077069	With ONEPolicy enabled and admin profile configured on the port, ICMP reply is lost momentarily if ICMP and LLDP packets reach the switch at the same time.
xos0077169	In MLAG topologies, FDB is removed randomly in an the MLAG peer, which causes connectivity issues
xos0077301	ARP entries are not created even though the ARP limit has not been reached, causing connectivity issues.
xos0077389	EDP process ends unexpectedly if the name of a VLAN configured with the command "CDP management-address vlan" is changed
xos0076337	NetLogin + Policy: LLDP packets are not sent or received, even after successful authentication, if the port is not part of any base/destination VLAN.
xos0077506	LLDP process ends unexpectedly after receiving an SNMP get query polling for lldpXMedRemCapabilitiesTable.
Summit X770 Series Switches	
xos0077258	On Summit X770 series switches, the 40G configured port LEDs light up in green instead of blue.
ExtremeSwitching X620 Series Switches	
xos0076939	The command `show tech all logto file` returns a corrupted gzip file.
SummitStack	
xos0077253	Packets are slow-path forwarded when received by the CPU for learning causing duplicate traffic.
xos0077462	In WMLAG topology, ISC blocking filter stops working after MLAG failover when ISC and MLAG ports are on different slots.

Resolved Issues in ExtremeXOS 22.7.1-Patch1-17

The following issues were resolved in ExtremeXOS 22.7.1-Patch1-17. ExtremeXOS 22.7.1-Patch1-17 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, and ExtremeXOS 22.7. For information about those fixes, see the release notes for the specific release.

Table 13: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 22.7.1-Patch1-17

CR Number	Description
General	
xos0077144	After applying web access profile, the error log message "<Erro:cm.sys.LoadApplCfgObjFail>" appears after rebooting.
xos0076885	HTTPS sessions persist in "CLOSE_WAIT" state resulting in web access issues.
xos0077100	Switch fails to send tech-support data to collector after reboot.
xos0077094	Switch incorrectly defers sending tech-support data at the configured interval in some scenarios.
xos0075415	Inactive IPv6 static routes are moved to active after a reboot in BFD strict mode.
xos0075117	The command `enable iproute bfd strict` needs to display "require reboot" information message.
xos0074298	Static routes become active even though BFD session is not yet established after a reboot resulting in traffic loss.

Resolved Issues in ExtremeXOS 22.7.1-Patch1-15

The following issues were resolved in ExtremeXOS 22.7.1-Patch1-15. ExtremeXOS 22.7.1-Patch1-15 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, and ExtremeXOS 22.7. For information about those fixes, see the release notes for the specific release.

Table 14: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 22.7.1-Patch1-15

CR Number	Description
General	
xos0075914	DHCP: DNS domain names from a server are not updated to the DNS proxy.
xos0076092	ExtremeXOS VM: DNS server information obtained from DHCP is not installed properly.
xos0076153	Fabric Attach (FA) uplink port is removed from FA Mgmt VLAN after ZTP+ configuration is pushed.
xos0076376	ELRP packets are transmitted with checksum errors.
xos0076430	Process hal ends unexpectedly with signal 11 after unconfiguring a standby slot when policy is enabled.
xos0076447	TLS transactions sometime encounter issues when clients send packets after a delay.
xos0076593	OSPF AS external routes are removed when one of the two paths go down out of which one is inter area path and another is intra area path.
xos0076686	For ExtremeXOS 16.2 and later, SSH has a 3–5 seconds delay for prompt password window to appear.
xos0076705	Cable diagnostics are not working on Summit X460G2-16mp switches.
xos0076764	After failover, OSPFv3 routes are not removed from new master node.
xos0076186	ONEPolicy rules are not taking effect if CoS is configured in the profile.
xos0076956	IPFIX does not work on a stack when a master node does not support IPFIX.
xos0076816	The NTP association takes a while to be updated when the interface goes down or comes back up.
xos0077005	In an STP with MLAG configuration, ISC port cost should appear as "0" under the command `show` **`stp`** *`domain_name`* **`ports`** output.
Extended Edge Switching	
xos0076250	One-armed Extended Edge Switching MLAG cannot be formed using MLAG ID 1 and 2.
xos0076298	With cross-connected MLAG configuration, a few CSP sessions are not opened after multiple failovers of controlling bridge (CB).
xos0075645	Extended Edge Switching ring goes to severed state after rebooting controlling bridge (CB) with rebalancing on.
xos0076323	Extended Edge Switching ring stays in "Formation disabled" state after rebooting a tier 1 slot, or disabling, and then enabling, native cascade ports.
xos0076318	Extended Edge Switching ring remains in severed state after rebooting all slots with traffic.
xos0076295	The output of the command `show vpex port` is not showing MLAG ID information when more than a single one-arm MLAG ring is configured.

Table 14: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 22.7.1-Patch1-15 (continued)

CR Number	Description
xos0076299	Extended Edge Switching ring: Multicast traffic loss occurs when adding a new member port to a native cascade LAG.
xos0076387	Extended Edge Switching ring: OSPF goes down when adding a new member port to a native cascade LAG.
xos0076149	Error log "pibAddPortToDot1BrVlanBitMap" occurs when Extended Edge Switching MLAG ring is coming up after a reboot.
xos0076154	On ring common (RC) link, LAG member ports are not added as aggregator.
xos0076161	One-armed MLAG: Extended Edge Switching remains in the "Formation Disabled" state after disabling, and then enabling, of the native cascade port.
xos0076227	In Extended Edge Switching ring topology after rebooting a bridge port extender (BPE) in the severed state, Multicast traffic is dropped.
xos0076242	After a ring common link flap, the Extended Edge Switching ring sometimes does not recover and stays in the "Severed" state.
xos0076245	Extended Edge Switching ring: IPMC "Unable to Del L2" error logs occur when deleting ports from VPLAG.
xos0076343	Traffic loss occurs after enabling LAGs on extended VLAN ports.
xos0076348	In an MLAG and Extended Edge Switching ring topology, when trying to form a ring from a cascade chain, traffic is dropped.
xos0076371	After a controlling bridge (CB) failover, LACP sessions go down resulting in traffic loss.
xos0076557	Ring common link LAG member does not converged properly in cross-connect MLAG ring.
xos0076607	One-armed MLAG: Flood traffic is blackholed after an intermediate slot is removed.
xos0076460	Rebalancing is not happening after a slot is removed from a cross-connect MLAG Extended Edge Switching ring.
xos0076628	After a controlling bridge (CB) reboot, Multicast traffic loss occurs for slots connected by a one-armed ring.
xos0073946	On Extended Edge Switching controlling bridge (CB) switches, the `show inline-power stats` command takes longer than usual to display the output, and sometimes it returns "Timeout occurred while retrieving information from hardware." messages.
xos0076462	Cross-connect MLAG: LAG members are not added after adding a new slot with rebalancing turned on.
xos0076398	The time taken for the an eight-node Extended Edge Switching ring(with two PoE slots) to go to the complete state is excessive (approximately 6 mins).
xos0076689	One-armed MLAG: Disabling, and then enabling, ports on a controlling (CB) breaks the MLAG-Extended Edge Switching ring and it remains in a severed state.

Table 14: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 22.7.1-Patch1-15 (continued)

CR Number	Description
xos0076541	Flood traffic is dropped at bridge port extender (BPE) if A VLAN is added to the extended port after breaking the ring.
xos0076765	The hal process ends unexpectedly when a one-armed MLAG ring is formed with an MLAG ID greater than 64,000.
xos0075272	"UV/OV" fault is not cleared after the PoE limit is exceeded, and then returned back within the acceptable range.
xos0076965	After an ISC flap in one-armed ring topology, FDB is not learned on a slot.

Resolved Issues in ExtremeXOS 22.7.1-Patch1-11

The following issues were resolved in ExtremeXOS 22.7.1-Patch1-11. ExtremeXOS 22.7.1-Patch1-11 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, and ExtremeXOS 22.7. For information about those fixes, see the release notes for the specific release.

Table 15: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 22.7.1-Patch1-11

CR Number	Description
General	
xos0076662	Port not added as tagged based on egress VLAN list in policy profile after the client authentication.
xos0076652	In the output of `show ports` command, the usual expression for excluding “0” entries is not working as expected.
xos0068278	IP security snooping is not working for clients in sub-VLAN. Violation is detected correctly, but the corresponding action is not triggered.
xos0076244	On ExtremeSwitching X690 series switches, LACP custom sharing is not working between PE to CE.
xos0076290	Blackhole route not removed from kernel when it goes down in software level, leading to L3 connectivity issues.
xos0076412	The command `show` **`port`** *`port_list`* output is aborted with an error when an optics is removed from an active port.

Resolved Issues in ExtremeXOS 22.7.1-Patch1-8

The following issues were resolved in ExtremeXOS 22.7.1-Patch1-8. ExtremeXOS 22.7.1-Patch1-8 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, and ExtremeXOS 22.7. 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 22.7.1-Patch1-8

CR Number	Description
General	
xos0074712	Process MRP ends unexpectedly with signal 6 while processing MSRP stream details.
xos0075946	On ExtremeSwitching X440G2-24x switches, Source Photonics 100FX optics link up as 1G, instead of 100 Mbps.
xos0076122	VRRP dual master seen after reboot for around 10~15 mins when MLAG reload-delay enabled.
xos0075492	ExtremeSwitching X440-G2 series switches PoE virtual temperature sensor model algorithm needs correction.
xos0075717	In VXLAN configuration, mismatch between software and hardware FDB occurs after underlay network flaps.
xos0075849	The command `show ssl` is not returning the output in a string when called by exes.api.exec_cli(); instead, the output is sent to the terminal.
xos0076037	MRP process ends unexpectly with signal 11 when MLAG port is down and receives MRP checkpoint from peer MLAG.
xos0076042	The command `show iproute origin static` shows only eight entries after reboot.
xos0076049	For QSFP+/QSFP28 optics, Rx/Tx power values do not appear correctly when fetched using SNMP.
xos0076150	Memory depletion occurs in process aaa when executing Soap/XML commands.
xos0076151	ExtremeRtStats OID is not working as expected.
xos0076184	The command `show port X transceiver information detail` does not show ddmi parameters for AFBR-57E6APZ-EX1 and the "-EN1" (Extreme Branded) SFPs. The command `debug hal show optic ee port X` does not show the ddmi page of the eeprom.
xos0076285	In ExtremeXOS 22.5+ versions, ExtremeXOS switches are not accessible through the URI/xmlService.
xos0061497	With L3VPN Dual homing, traffic is slow-path forwarded when the L3VPN peer is changed.
xos0076030	EDP does not work on a port when the port is an untagged member of a non-Default VLAN with tag 1.
xos0076134	MLAG ports do not come up after reboot when reload delay is configured.
xos0076219	In Chalet, inventory details do not appear for ONIE switches.

Table 16: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 22.7.1-Patch1-8 (continued)

CR Number	Description
xos0076359	With MPLS next-hop enabled, BGP control packets do not set Dot1p values. When MPLS exp examination/replacement is enabled, the packets do not have the proper exp bits set.
xos0076480	The transmission interval of BFD control packets is changed when the BFD session is not up.
xos0076488	When MLAG convergence control is set to fast, packet drops occur on slowpath during failover.
xos0076280	PVLAN+MLAG: Isolated VLAN traffic receiving on ISC port is forwarded to local MLAG port.
xos0076478	Some MLAG ports with reload delay configured come up only after 10 seconds after reload delay.
SummitStack	
xos0076215	After multiple failovers, the Multiport FDB feature does not work as expected.
xos0076152	Traffic received on ISC are not blocked and sent by the MLAG port that belongs to the same MLAG ID.
xos0076203	PVLAN feature does not work properly after a failover.

Resolved Issues in ExtremeXOS 22.7.1-Patch1-3

The following issues were resolved in ExtremeXOS 22.7.1-Patch1-3. ExtremeXOS 22.7.1-Patch1-3 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, and ExtremeXOS 22.7. 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 22.7.1-Patch1-3

CR Number	Description
General	
xos0075483	The process cfgmgr ends unexpectedly when executing another save command after a failing first save command.
xos0075544	Policy process ends unexpectedly at random time, when client in the network tries to access captive portal page.
xos0075723	After re-authenticating the Dot1x client, FDB is learned on the wrong VLAN at random times.

Table 17: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 22.7.1-Patch1-3 (continued)

CR Number	Description
xos0075752	The CPU utilization of process hal increases significantly after MAC authentication with NSID attribute.
xos0075939	After multiple failovers, MLAG filter is not updated in hardware resulting in traffic issues.
xos0076036	When periodic ELRP is configured on dynamic VLANs, ELRP disabled port is not re-enabled.
xos0076081	Backup root needs to be triggered for root expiry.
xos0074872	When limit learning is configured on one VLAN, FDB entries on another VLAN are flushed from hardware.
xos0075683	VC label TTL has not been set correctly in VPLS.
xos0076060	GPTP enabled state eventually goes to disabled state and "resource temporarily unavailable" error message appears in EMS log.
xos0074601	Ping is not working on MLAG port of a mixed stack of Summit X460-G2 and ExtremeSwitching X620 series switches if Summit X460-G2 is the master.
SummitStack	
xos0075993	If an ARP entry changes MAC address or port number during stack failover, bcmASYNC process can end unexpectedly after failover if the same ARP changes again.
xos0068006	After rebooting the stack/slot, additional link flaps occur on 10G SFP+ passive copper and 40G QSFP+ passive cable.
Extended Edge Switching	
xos0075872	Traffic loss occurs for more than 20 seconds when controlling bridge is rebooted or when you disable/enable ISC cascade port.
xos0075874	STP convergence time increases after ISC and cascade port come up or after controlling bridge (CB) reboots causing ping traffic loss.

Resolved Issues in ExtremeXOS 22.7

The following issues were resolved in ExtremeXOS 22.7. ExtremeXOS 22.7 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, and ExtremeXOS 22.6. 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 22.7

CR Number	Description
General	
xos0069194	Packets with size greater than the configured IP-MTU value are forwarded if jumbo frames is enabled and ARP is resolved.
xos0069786	A hard CPU utilization limit is in effect on tasks, such as Python and shell scripts, in the "Other" control group. Base Linux tasks and ExtremeXOS tasks have no utilization limits, and are grouped together in the "EXOS" control group for display by the command `show process groups`. This allows the displayed utilization statistics to better reflect the current state, especially on switches with multi-core processors.
xos0069987	HAL process ends unexpectedly with signal 11 when executing the command that fetches entries from hardware.
xos0070318	Fallback to older option 43 Zero Touch Provisioning (ZTP) does not happen if ZTP+ fails.
xos0070488	Chalet needs to support configuring the higher port speeds: 100G, 50G, and 25G.
xos0071788	The output of the `show configuration/show configuration detail` commands does not show management port related traps configuration.
xos0072176	DNS resolves on wrong VR.
xos0072290	Process rtmgr ends unexpectedly when the BGP peer is rebooted.
xos0072316	PTP IP multicast packets are not forwarded.
xos0072564	Chalet stops responding if the port display string contains German special characters.
xos0072599	Directed broadcast traffic is not forwarded unless a port in the egress VLAN is restarted.
xos0072618	SSH/Telnet session stops responding when the command `run diagnostics cable ports all` is executed.
xos0072697	MPLS process ends unexpectedly when permanent licenses are enabled after trial license expiry.
xos0072940	Port does not come up when connected with 2-pair (1,2,3,6 wire connected) Ethernet cable.
xos0073143	After retrieving VLAN statistics through SNMP or CLI in a certain sequence, switch stops responding to VLAN related SNMP polling and show commands.
xos0073226	EDP process ends unexpectedly when processing CDP packets having a device ID that is null.
xos0073363	The command `show edp port detail` does not display correct port speed if peers run different ExtremeXOS versions.

Table 18: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 22.7 (continued)

CR Number	Description
xos0073383	Memory leak occurs on HAL when port is removed, and then added back to a LAG.
xos0073478	ELRP disables an excluded port when ELRP loop protection is enabled at egress.
xos0073553	Need to add router discovery related commands in ExtremeXOS Command Reference Guide.
xos0073608	Dropped packets on eth0 interface are accounted for in ifInErrors instead of IfInDiscards.
xos0073804	The process rtmgr ends unexpectedly with signal 11 after changing the gateway of L3VPN routes.
xos0073816	Zero Touch Provisioning (ZTP) does not work if the IP address from the Linux DHCP server is assigned from an address pool based on the vendor class identifier.
xos0073877	CSR privatekey generated in the switch is not accepted by certificate authority since the common name has "_" in the prefix.
xos0073894	Unable to connect with SSH using IPv6 on VR-default or user-defined VRs.
xos0073899	LACP sharing enabled port are added to link aggregator even though port speeds are different.
xos0073996	Installation of XMOD fails with error "Not enough disk space".
xos0074089	The `ls internal-memory` command needs to be replaced in `show tech-support` with correct arguments.
xos0074303	NTP restricted list configuration is not reflected in the output of the "show configuration" command causing configuration lost on reboot and NTP restrict entry not being removed when deleted.
xos0074306	Connecting with Telnet to hostname on VR-Default fails.
xos0074308	Image download fails if the URL size limit is greater than 128 characters.
xos0074338	After PIM-SM failover, the second convergence occurs resulting in minor traffic loss.
xos0074493	The process IDMgr ends unexpectedly with signal 11 when client logon and port flap occur at the same time, and if the client entry is already present multiple times in the IDMgr table.
xos0074513	Ports disabled by ELRP due to a loop in the dynamic VLAN of NetLogin is not automatically re-enabled after timer expiry.
xos0074544	Downloading ExtremeXOS image to backup/standby node in a stack fails due to TFTP block number limitation.
xos0074672	Unable to connect a new switch to the ExtremeCloud due to a SSL certificate exchange error.
xos0074702	Zero Touch Provisioning (ZTP) does not work over the Management interface.
xos0074751	The command `clear` **`port`** *`port_list`* **`rate-limit flood out-of-profile`** *`status`* should clear status only.

Table 18: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 22.7 (continued)

CR Number	Description
xos0074874	Need to permit the use of few special characters for SysName/SysLocation/ SysContact.
xos0074898	The MAC address of IPv4 adjacency is not always updated in the hardware after stack failover.
xos0074933	Dynamic VLANs created by MVRP on MLAG ports flap continuously when the ports are in the down state.
xos0075012	Need additional configurable option for success count in flow-redirect health check command.
xos0075021	HAL process ends unexpectedly when unsupported optics are inserted into the switch.
xos0075096	SNMPwalk does not return "partinfo" of all fans present in the switch.
xos0075213	If the debug command `debug hal show ipv4Adj` is interrupted using "Q" or Ctrl-C before all adjacencies appear, then subsequent Layer 3 hardware updates do not occur. Reboot is necessary to recover.
xos0063031	Process CliMaster ends unexpectedly with signal 6 when pressing **CTRL** + **s**.
xos0066220	The show tech process does not exit automatically after the Telnet session that triggered it is terminated.
xos0073183	Current value in `show port info detail` is changed when the port is partitioned.
xos0073254	In Chalet, the ezMlag tab under apps does not work.
xos0073789	The process bcmASYNC ends unexpectedly at random times with continuous traffic.
xos0075510	Need to add success option under to command `configure flow-redirect next-hop` in the ExtremeXOS documentation.
ExtremeSwitching X440-G2 Series Switches	
xos0070362	Switch incorrectly accepts half duplex configuration with 1G speed.
xos0073412	On ExtremeSwitching X440G2 stacked switches, LAG configuration on combo ports is lost if the backup node is stuck after rebooting the stack.
xos0074040	Layer 2 protocols (EAPS, ERPS, STP) take 15 seconds to converge with Edge license installed.
xos0075020	Switch takes around 30 seconds to bring up all ports, which is triggering multiple STP topology changes.
xos0075030	On ExtremeSwitching X440-G2 48-port switches, ACL hardware full errors occur when Extreme Management Center (XMC) is used to push policy and telemetry.
xos0075129	IPv6 MLD packet filter installation fails in ACL double-width mode.
Summit X450-G2 Series Switches	
xos0060591	Log message "LAG called bcm_port_untagged_vlan_set" appears while adding LACP port to aggregator.

Table 18: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 22.7 (continued)

CR Number	Description
Summit X460-G2 Series Switches	
xos0073360	Random port flaps occur on Summit X460-G2-10G ports.
xos0072382	After NetLogin client authentication, at random times ARP entries are programmed without port numbers.
ExtremeSwitching X590 Series Switches	
xos0074378	The process PoE stops responding on the controlling bridge (CB) when polling the PoE configuration periodically from ExtremeManagement (cloud connector).
ExtremeSwitching X620 Series Switches	
xos0072580	For ExtremeSwitching X620 series switches, after applying policy configuration changes with `disable policy` and `enable policy` on a LAG master port that is in down state, NetLogin authentication may fail on the port.
Summit X670-G2 Series Switches	
xos0073006	Packets with UDP port 4000 destined to a VLAN other than ISC are lifted to VSM process.
xos0073117	On Summit X670-G2 series switches after an ExtremeXOS upgrade, the error "Deferred L2 notification code out of sync unit 0" appears in `show log` output.
ExtremeSwitching X690 Series Switches	
xos0072875	After enabling sharing on a port that does not support 100G, an error appears after executing `configure ports all partition 1x100G`.
xos0074587	EHOP table is leaking when port flaps on the switch.
xos0073473	Kernel crash occurs randomly after flapping the ports through which LSP is established.
ExtremeSwitching X870 Series Switches	
xos0072630	ExtremeSwitching X870 series switches do not accept policy-related configurations on port 128.
xos0073426	Unable to configure FEC on X870-96x-8c switch on ports with100G capability enabled through a license.
xos0073880	In policy, redirect-port-list action modifier does not work properly for LAG ports.
xos0073513	After run failover, MLAG ports stays in disabled state when reload-delay timer is configured.
ACL	
xos0071420	After removing rules and disabling policy when failover is performed, ACL rule usage is not cleaned up. With these remaining stale ACLs, if new rules are configured, and then unconfigured, error messages appear.
xos0073276	Refresh policy fails if "meter" action is added to an existing rule.

Table 18: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 22.7 (continued)

CR Number	Description
xos0073376	ACL smart refresh is not working as expected for source address (0.0.0.0/0) match condition.
xos0073409	An empty error message appears on the console while refreshing a policy that contains an IPv6 rule.
xos0074344	ACL process signal 5 appears when changing active l2pt profile on ports.
xos0074701	Well-known MAC address added as a token for policy.
BGP	
xos0073222	BGP sessions go down when they receive an update with route 0.0.0.0/32.
BGP Auto-peering	
xos0070932	With BGP auto-peering and VXLAN setup, traffic is not forwarded to some RTEPs, when back-to-back ECMP links are connected.
xos0072783	VLAN process ends unexpectedly when disabling all remote VXLAN tunnel end points using the command `disable virtual-network remote-endpoint vxlan all`.
Clocking	
xos0072943	PTPV2 process ends unexpectedly with signal 5 when rebooting the switch with Network Timing license enabled.
xos0075437	Random values are added to GPTP packets.
EAPS	
xos0067218	Short loop occurs in EAPS with shared ports after link failure recovery.
ERPS	
xos0071438	ERPS rings do not have a way to configure ring ID.
Extended Edge Switching	
xos0072827	Need to support IP gateways on Extended Edge Switching bridge port extenders (BPEs) extended ports.
xos0072872	On Extended Edge Switching configurations, the STP port of peer switch, goes to "blocking" instead of "disabled" state when the connecting port on root bridge is disabled using the command `disable` **`port`** *`port #`*.
xos0072936	When using Extended Edge Switching full automation with multiple controlling bridge (CB) MLAG peer candidates, automation stops (as designed), but displays errors due to clean-up effort that involves deleting non-existent VLANs.
xos0073266	When Extended Edge Switching auto-configuration is used, the MLAG master ports connecting to BPEs on the two peers are not always the same. This leads to different local keys being used by the MLAG peers and traffic being lost in case of a failover.
xos0075177	In Extended Edge Switching/MLAG environments, Dot1x authentication fails when the authenticator side MLAG cascade port goes down.

Table 18: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 22.7 (continued)

CR Number	Description
xos0075620	Under certain conditions, a ring may time out trying to converge and remain in the severed state. If a ring has suffered a timeout and is persisting in the severed state, the `show` **`vpex topology detail`** command shows "Ring (Severed) - Formation Disabled". To resolve the severed state, disable or enable a severed cascade port on the ring (marked with "S" flag in the `show` **`vpex topology detail`** command).
xos0075516	PoE is not working as expected with Extended Edge Switching.
xos0075689	Switch becomes unresponsive for 5–15 minutes when UPM executes command in orchestration mode on both MLAG controlling bridges.
FDB	
xos0073070	The limit-learning feature is not working as expected in MAC Move/LOOP scenarios.
xos0073139	When user-configured ACLS are applied on limit learning ports, packets are leaked.
Fabric Attach	
xos0072447	Dynamically created Fabric Attach assignments are not cleared even after removing the policy profile.
xos0074187	After a Fabric Attach client reboot or after disabling/enabling a port, the uplink port is not added to a dynamic VLAN on the Fabric Attach proxy.
MLAG	
xos0073394	FDB is not check-pointed correctly with W-MLAG configuration.
xos0073462	MLAG peers do not verify the LACP MAC addresses of the neighbor switches.
xos0074039	After disabling, and then enabling the ports, traffic from one MLAG port is not egressing by the other MLAG port.
MPLS	
xos0072916	Traffic is not forwarded to VPLS peer after LSP path failover.
xos0073248	Ping fails between switches when the connected port is removed from the VMAN.
xos0073490	Layer 3 VPN routes are not installed on a backup node on a stack after slot reboot.
xos0073818	Packets originating in a switch fail to egress after removing the ports from service VLAN.
xos0074611	Label mismatch issues between LDP routers after enabling LDP loop detection.
xos0074924	VPLS: VP leak occurs when switching pseudowire path from RSVP to LDP and vice versa.
xos0074795	Port flaps cause FDB learning to stop on network VLAN ports.
Network Login	

Table 18: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 22.7 (continued)

CR Number	Description
xos0072913	After timing out on Dot1x supplicant expiry timer, switch does not respond to EAPOL start packets received from supplicants.
Optics	
xos0072483	ExtremeSwitching X690, X870 and X590 series switches do not support 100G Optic/AOC cables on stacking ports.
xos0072824	Need support for the following cables: • 10304 Siemon 900074-10-03-L-ENG 1m 24AWG SFP+ • 10305 Siemon 900075-10-03-L-ENG 3m 24AWG SFP+ • 10306 Siemon 900076-10-03-L-ENG 5m 24AWG SFP+ • 10307 Siemon 900077-10-03-L-ENG 10m 24AWG SFP+
xos0073995	Need to avoid bringing down OSPF neighborship when neighbor is restarted gracefully.
xos0074073	SNMP get for entPhySensorOperStatus returns "unavailable" for QSFP optics.
xos0074200	The OPNEXT transceiver device does not link reliably on ExtremeSwitching X690 and X590series switches.
xos0074595	Even though the port speed is properly configured, the 100G ports port speed compatibility log message appears.
OSPFv2	
xos0063567	OSPF stops exporting static routes when NSSA area export is disabled.
xos0072684	Router LSAs are dropped if they contains more than 400+ links.
xos0072748	After rebooting the switch, OSPF address range conflict error messages appear when summarized route range subnets between the OSPF areas overlap.
xos0073893	ExtremeXOS generates incorrect values for remote interface sub-TLV in OSPF type 10 LSAs.
xos0073995	Need to avoid bringing down OSPF neighborship when neighbor is restarted gracefully.
Policy	
xos0071673	Need a provision to modify the default precedence of OnePolicy profile rules.
xos0072647	The polMgr process ends unexpectedly on backup MSM after executing `refresh policy`, and then `unconfigure policy`.
xos0075057	Traffic drop occurs when receiving LLDP packets on the ONEPolicy admin profile configured port.
Security	
xos0066643	NetLogin session is not cleared in session timeout when session timeout is received from RADIUS attribute.

Table 18: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 22.7 (continued)

CR Number	Description
xos0072335	Dot1X client remains authenticated and is not moved to destination VLAN returned by RADIUS from guest VLAN even after enabling EAPOL on client computer.
xos0072801	If a NetLogin MAC address entry is learned on multiple VLANs, then the entry is re-authenticated only in the first VLAN on which it was authenticated.
xos0072944	Unable to list directory contents using SFTP.
xos0072957	ExtremeXOS command needs provision to support CEP precedence for authentication protocol order.
xos0073163	Unable to enable policy from initial Extreme Management Center enforce due to timeout of ACL resource reservation.
xos0073224	In Policy mode, dynamically added ports on a VLAN for a MAC session are not removed from the VLAN even though the MAC session is overwritten by a Dot1x session.
xos0073312	Note should be displayed when configuring Dot1x server timeout, such that the value should be greater than RADIUS server timeout.
xos0073320	Need new commands to enable/disable external Python script execution that is enabled by default.
xos0073378	With FIPS mode enabled, and after upgrading from ExtremeXOS 16.1, Exsshd process ends unexpectedly with signal 11 when attempting to log on to SSH.
xos0073516	NetLogin-authenticated clients are cleared with the reason admin-reset when other clients that were earlier authenticated on that port existing under a terminated session moved to non-NetLogin port.
xos0073578	The traffic destined to the web-redirect server is blocked when default drop is applied to a profile with "pvid 0".
xos0073897	In OnePolicy, new policy profiles received on re-authentication from RADIUS/NAC servers do not take effect.
xos0073972	TACACS does not successfully authenticate when using 2FA.
xos0074435	Netlogin Dot1x authentication fails if port has already been moved to authentication failure VLAN, and VLAN VSA for Dot1x authentication is not supplied in the RADIUS accept packet.
xos0074567	NetLogin authenticated clients are cleared due to admin reset when MAC move occurs.
xos0074606	NetLogin users are authenticated to random destinations when destination VLAN attributes from the RADIUS server are not received.
xos0074910	Captive portal stops working when more clients try to access the captive portal page.
sFlow	
xos0073188	When App Telemetry Analytics is configured, sFlow warnings appear in logs on VPEX-enabled ports.
SNMP	

Table 18: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 22.7 (continued)

CR Number	Description
xos0070831	Value set for CEP for SNMP MIB etsysMultiAuthSystemAdminPrecedence object is omitted after reboot/restart of NetLogin process.
xos0073019	SNMP get next on ctAliasProtocolAddressInterface MIB table does not return correct next OID.
xos0073216	Fetching values using SNMP for "entPhySensorEntry" gives incorrect values.
xos0073251	Snmpmaster process ends unexpectedly in rare cases when packets received at an application fail.
xos0074058	SNMPwalk to fetch user-created VRs neighbor-discovery always returns vr-Default information.
Stacking	
xos0065997	In SummitStacks with ring topology, when a backup node is rebooting, the standby node also gets rebooted.
xos0071254	Login issues occur when using Telnet to connect to other slots from master node with RADIUS mgmt-access enabled.
xos0072870	On SummitStacks, slots are very slow to become operational if learning is disabled on multiple VLANs.
xos0072932	Software watchdog expiration and kernel threads stuck error messages occur in stack setup. `10/03/2018 11:39:00.91 <Crit:Kern.Card.Alert> Slot-1: CPU 0: Kernel thread was stuck for 5.00 seconds, time: 444947377 msec 10/03/2018 11:38:58.40 <Crit:Kern.Card.Alert> Slot-1: CPU 0: soft watchdog expiration warning at 76ab5288 (0x76ab5288) for 2 seconds, process exstm (1988)`
xos0073370	ExtremeSwitching X440-G2 and X620 series switches are not stable when used in a stack.
xos0072978	Dot1x authentication fails when Dot1x state machine remains in aborting state for the client.
xos0073002	Need "smart refresh" support for IPv6 policies.
xos0073619	If a slot containing a LAG member port is powered down, then that traffic initially forwarded through the LAG member port may be dropped for up to 20 seconds.
xos0074176	CPU-originated packets are double tagged with an incorrect outer tag of zero if they originate from master and egress out of a non-master node through another transit slot.
STP	
xos0071418	Ports configured for BPDU restriction are re-enabled on recovery-timeout even if administratively disabled.
xos0074195	Continuous DM error messages are logged if MLAG and STP are configured on stacks containing ONIE series switches (X870, X690).
xos0074481	All participating VLANs are removed from STP after deleting one port + VLAN from the STP domain.

Table 18: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 22.7 (continued)

CR Number	Description
xos0075207	In the ExtremeXOS User Guide STP Chapter, the statement about "STPD VLANs" should be removed.
VLAN	
xos0064449	VLAN process ends unexpectedly with signal 11 when disable sharing port/ delete VLAN ports with ESRP configuration.
xos0074374	ExtremeXOS does not support port VLAN monitoring on PSTAG ports.
xos0074871	EMS log message should be generated when a port cannot be added to a VLAN.
xos0074912	Traffic loss occurs with VLAN configuration after a save and reboot.
VRRP	
xos0072581	In VRRP IPv6 environment, router advertisement with link-local IPv6 interface address causes host connectivity issues.
xos0073573	VRRP IPv6 VMAC is installed as IPv4 VMAC when VLAN ID is changed.