



ExtremeXOS Release Notes

Software Version ExtremeXOS 30.5

9036622-00 Rev AB
March 2020



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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.
<i>New!</i>	New Content	Displayed next to new content. This is searchable text within the PDF.

Table 2: Text Conventions

Convention	Description
<code>Screen displays</code>	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]
<i>Words in italicized type</i>	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
- 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: (800) 998 2408 (toll-free in U.S. and Canada) or 1 (408) 579 2826. For the support phone number in your country, visit: www.extremenetworks.com/support/contact

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

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

Subscribe 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 (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. Select **Submit**.

Related Publications

ExtremeXOS Publications

- [ACL Solutions Guide](#)
- [ExtremeXOS 30.5 Command Reference Guide](#)

- *ExtremeXOS 30.5 EMS Messages Catalog*
- *ExtremeXOS 30.5 Feature License Requirements*
- *ExtremeXOS 30.5 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 Switch Extreme Management Center User Guide*

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These release notes document ExtremeXOS 30.5, which adds features and resolves software deficiencies.

Security Information

The following section covers important security information for ExtremeXOS 30.5.

OpenSSL Version

ExtremeXOS 30.5 uses FIPS fips-ecp-2.0.16.

Linux Kernel

ExtremeXOS 30.5 uses Linux Kernel 4.14.

Service Notifications

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

Upgrading ExtremeXOS

For instructions about upgrading ExtremeXOS software, see "Software Upgrade and Boot Options" in the *ExtremeXOS 30.5 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.

Stacking: Upgrading from ExtremeXOS 30.2 and Earlier

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

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

If both primary and secondary partitions have the same ExtremeXOS release, you may use the following commands to cause a node to use the same active image as the rest of the stack:

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

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

Extended Edge Switching Image Download Issue

If you are upgrading an Extended Edge Switching configuration (controlling bridge (CB) and bridge port extenders (BPEs)) from either ExtremeXOS 22.7.1 or earlier or ExtremeXOS 30.2.1 or earlier to ExtremeXOS 30.3 or later, you cannot upgrade automatically using the combined `.1st` file. Instead, you must perform a manual upgrade. ExtremeXOS 22.7.1-Patch1-3 and later do *not* have this issue.

To perform a manual upgrade:

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

For more information about manual upgrades, see the *Manual Upgrading* section in the *Extended Edge Switching Chapter* in the [ExtremeXOS 30.5 User Guide](#).

After this one-time upgrade, you can perform all subsequent ExtremeXOS upgrades automatically using the `.lst` file. For more information about automatic upgrades, see the *Automatic Upgrading* section in the *Extended Edge Switching Chapter* in the [ExtremeXOS 30.5 User Guide](#).

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

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

Retry the upgrade using the manual upgrade procedure described above.

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

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

ExtremeSwitching X460-G2 Series Switches with LRM/ MACsec Adapter Log Messages

ExtremeSwitching X460-G2 series switches running ExtremeXOS 30.5 with an attached LRM/ MACsec adapter may see the following log messages, which should be considered harmless:

```
<Erro:HAL.MACsec.CfgPortHwFail> Failed to configure MACsec HW: 0 50: EPDM
MacsecGetCounter: Invalid parameter
<Erro:HAL.MACsec.CfgPortHwFail> Failed to configure MACsec HW: 0 50: EPDM
MacsecGetRxSaNextPn: Invalid parameter
```

Hardware-Assisted ELRP Not Supported on ExtremeSwitching X435 Series Switches

The Hardware-Assisted Extreme Loop Recovery Protocol (ELRP) feature is not supported on ExtremeSwitching X435 series switches, due to the X435 switches only supporting ingress stage ACL, and Hardware-Assisted ELRP uses egress stage ACL for rate limiting based on the interval configuration.

Default ExtremeXOS® Settings

Table 3 shows the default settings for ExtremeXOS starting with version 22.6, and shows any changes that have been made to these settings and in what version these changes were made.

Table 3: Default ExtremeXOS Settings

ExtremeXOS Feature	ExtremeXOS 22.6 Settings	ExtremeXOS 30.1 Settings	ExtremeXOS 30.3	ExtremeXOS 30.5
Account Lockout	After 3 consecutive login failures, account is locked for 5 minutes.			
AVB	Disabled.			
BFD Strict Session Protection	N/A.	N/A.	Disabled.	
BGP	Disabled.			
Bluetooth	N/A.	N/A.	Enabled.	
BOOTP Relay	Disabled.			
CDP	Enabled.			
Configuration auto save	Disabled.			
Clear-flow	Disabled.			
Diagnostics	Admin level privileges required to show diagnostics.			
DHCP	Disabled.			
DNS Cache Resolver and Analytics	N/A.	N/A.	Disabled.	
IPFIX	Disabled.			
EAPS	Disabled.			
EDP	Enabled.	Enabled on management port.		
ELRP	Disabled.			
ESRP	Disabled.			
Extended Edge Switching (VPEX)	Disabled.			
Identity Management	Disabled.			

^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)

ExtremeXOS Feature	ExtremeXOS 22.6 Settings	ExtremeXOS 30.1 Settings	ExtremeXOS 30.3	ExtremeXOS 30.5
IGMP	Enabled, set to IGMPv2 compatibility mode.			
IGMP Snooping	Enabled.			
IP Route Compression	Enabled.			
ISIS	Disabled.			
Log	Admin level privileges required to show log.			
Logging memory buffer	Generate an event when the logging memory buffer exceeds 90% of capacity.			
MAC Security	N/A	Disabled.		
MLD	Disabled.			
MLD Snooping	Disabled.			
MPLS	Disabled.			
MSRP	Disabled.			
MSTP	Enabled.			
NetLogin	All types of authentication are disabled.			
NTP	Disabled.			
ONEPolicy	Disabled.			
Policy rule model				Access list (Unless upgrading to 30.5 with existing policy rules configuration, then the default is hierarchical.)
OpenFlow	Disabled.			Not supported.
OSPF	Disabled.			
OVSDB	Disabled.			Not supported.
Passwords	Plain text password entry not allowed.			
PIM	Disabled.			

Table 3: Default ExtremeXOS Settings (continued)

ExtremeXOS Feature	ExtremeXOS 22.6 Settings	ExtremeXOS 30.1 Settings	ExtremeXOS 30.3	ExtremeXOS 30.5
PIM Snooping	Disabled.			
PoE Fast PoE Perpetual PoE	Enabled. N/A. N/A.		Enabled. Disabled. Disabled.	
RADIUS	Disabled for both switch management and network login.			
RIP	Disabled.			
RMON	Disabled. However, even in the disabled state, the switch responds to RMON queries and sets for alarms and events.			
sFlow	Disabled.			
SNMP server	Disabled.			
SSH	Disabled.			
Stacking	Disabled.			
Stacking auto-discovery	N/A.	N/A.	Enabled.	
STP	Enabled.			
Syslog	Disabled.			
TACACS	Disabled.			
Telnet	Disabled.			
VPLS	All newly created VPLS instances are enabled.			
Watchdog	Enabled.			
Web HTTP server	Disabled.			

New and Corrected Features in ExtremeXOS 30.5

This section lists the new and corrected features supported in the 30.5 software:

VXLAN with MLAG Supports Check Pointing of ARP Entries

For VXLAN MLAG configurations, ExtremeXOS supports checkpointing of ARP entries learned on the checkpoint-able VXLAN tenant VLAN to the MLAG peer. This helps in avoiding unwanted flooding of ARP requests when the request hashes to the MLAG peers that do not have the ARP entries learned on the tunnel. It also avoids unwanted flooding when the peer that has the ARP reboots.

Supported Platforms

ExtremeSwitching X465, X590, X690, and X870 series switches.

Insight for Guest Virtual Machines Enhancements

ExtremeXOS 30.5 offers the following enhancements to the Insight for Guest Virtual Machines (VMs) feature:

- **VNC Support**—The video output device of a guest OS is accessible using VNC.
- **Support for Virtual Interfaces**—Ability to add and delete virtual interfaces on guest VMs.
- **Support for RESTful API**
- **Support for any QEMU-supported format**

Supported Platforms

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

Limitations

- For security reasons, VNC servers are only accessible using SSH tunnels.
- VNC support is not available on stacks.

New CLI Commands

```
configure vm vm_name add virtual-interface port port {vlan vlan_id}
{name vf_name}
```

```
configure vm vm_name delete virtual-interface [name vf_name | mac
mac_addr]
```

```
configure vm vm_name vnc [none | vnc_display]
```

```
show vm vm_name virtual-interface {vf_name}
```

Changed CLI Commands

Changes are underlined>.

```
create vm vm_name image image_file {memory memory_size} {cpus num_cpus}
{vnc [none | vnc_display]}
```

```
create vm vm_name ova ova_file {memory memory_size} {cpus num_cpus} {vnc
[none | vnc_display]}
```

The following show command has been enhanced:

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

ACL Style Policy

Traditional ONEPolicy architecture uses a hierarchical approach to rule precedence where rule type dictates precedence. In addition, rule look-ups occur per role, per action type. This means, for example, that triggering a forward/drop rule without an explicit Class of Service (CoS) action results in applying

the forward/drop action, and then continuing searching until a rule with CoS action matches. This hierarchical approach is implemented in hardware by maintaining one list for forward/drop actions, and one list for CoS actions. This implementation often results in underused resources, because not every rule has both forward/drop and CoS actions.

With ACL Style Policy, a new mode of operation with a single ordered list per role is maintained. Rule look-ups occur in the provided ACL order per role. A match applies all actions specified, and the search stops. This approach can potentially double the advertised scale of classification rules as compared to the traditional model. It also provides a more standard approach to policy classification rules.

ACL Style Policy implements a new RESTful API for configuration of classification rules.

Supported Platforms

ExtremeSwitching X435 (tci-overwrite and **app-signature** are not supported), X450-G2, X460-G2, X670-G2, X440-G2, X465, X590, X620, X690, X870 series switches.

Limitations

SNMP for configuration of ACL Style Policy classification rules is not supported.

New CLI Commands

```
configure policy rule-model [access-list | hierarchical]

create policy access-list list_dot_rule {matches [ {app-signature group
group name} {ether ether{mask ether_mask}} {icmp6type icmp6type
{mask icmp6_mask}} {icmptype icmptype {mask icmp_mask}} {ipdestsocket
ipdestsocket {mask ipdest_mask}} {ipfrag} {ipproto ipproto {mask
ipproto_mask}} {ipsourcesocket ipsourcesocket {mask ipsrc_mask}} {iptos
iptos {mask iptos_mask}} {ipttl ipttl {mask ipttl_mask} {tcpdestportIP
tcpdestportIP {mask tcpdest_mask}} {tcpsourceportIP tcpsourceportIP
{mask tcpsrc_mask}} {udpdestportIP udpdestportIP {mask udpdest_mask}}
{udpsourceportIP udpsourceportIP {mask udpsrc_mask}} ] } {actions [ {cos
cos} {drop | forward} {mirror-destination control_index} {syslog]}]

delete policy access-list [all-rules | list_dot_rule]

configure policy access-list [ rule-precedence [ list_dot_rule [ after
member_rule | before member_rule | first | last ] ] ]

show policy access-list {list_dot_rule | profile-index profile_index}
[ {matches [app-signature | ether | icmp6type | icmptype | ipdestsocket
| ipfrag | ipproto | ipsourcesocket | iptos | ipttl | tcpdestportIP |
tcpsourceportIP | udpdestportIP | udpsourceportIP ] {mask mask} {data
data} } {actions [ {drop | forward {-1}} {cos cos} {mirror-destination
control_index} {syslog ] } ] } {detail}
```

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} {auth-
override auth_override} {nsi [nsi | none]} {web-redirect
web_redir_index} {access-list [unassigned | list_name |
list_name_placeholder]}
```

The following show commands are changed to show ACL Style Policy information:

```
show policy state

show policy capability
```

Multi-hop Bidirectional Forwarding Detection (BFD) for Border Gateway Protocol (BGP)

Multi-hop Bidirectional Forwarding Detection (BFD) for Border Gateway Protocol (BGP) is introduced in ExtremeXOS 30.5. This enhancement allows BFD support for non-directly connected EBGP as well as IBGP sessions. Hardware assist BFD also supports this feature.

The following command will show "Session type" as "Multi Hop" for Multi-hop BFD:

```
show bfd session {ipv4 | ipv6} {ipaddress} detail {vr [vrname | all]}
```

Supported Platforms

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

Dynamic Policy Access Control Lists (ACLs)

The dynamic policy access control lists (ACL) feature uses the existing RADIUS change of authorization (CoA) mechanism to override existing policy rules associated with a user by including a new vendor specific attribute (VSA) in the CoA. When a CoA request to apply a particular set of match conditions and actions (or an action-set) is received, a look-up is performed to determine which policy profile the specified user was authenticated in and the action-set ID specified in the CoA is applied in that user's profile.

Dynamic ACLs and Layer 7 policy share the slices not used by TCI overwrite enabled as one shared resource pool. Dynamic ACLs have a higher priority to override Layer 7 policy (DNS) entry matches.

The following match conditions can be used:

- `ipv4src ipv4source/mask-length`
- `ipv4dst ipv4dest/mask-length`
- `ipproto ipproto` (TCP or UDP)
- `l4srcport l4sourceport/mask-length` (requires ipproto)
- `l4dstport l4destport/mask-length` (requires ipproto)

The following actions can be used:

- CoS (not valid if "drop" is specified)
- Drop (not valid if "forward" is specified)

- Forward (not valid if “drop” is specified)
- Syslog
- Mirror

Supported Platforms

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

Limitations

- ACL style policy must be selected.
- Only a subset of the existing policy rules are allowed.
- SNMP is not supported.

New CLI Commands

```
configure policy slices shared [{ shared } { 17GuaranteedPercentage  
17GuaranteedPercentage } { dynAclGuaranteedPercentage  
dynAclGuaranteedPercentage}]
```

```
create policy access-list action-set set-id [{drop | forward} {cos cos}  
{mirror-destination control_index} {syslog}]
```

```
show policy access-list action-set {set_id}
```

```
delete policy access-list action-set set-id
```

Changed CLI Commands

The follow show command is changed to show configured guaranteed Layer 7 policy and dynamic ACL percentages:

```
show policy slices
```

Extended Edge Switching Enhanced Automatic Image Upgrade

In previous versions of ExtremeXOS, for MLAG/redundant controlling bridges (CBs) topologies to use automatic image upgrading required rebooting both CBs simultaneously, causing a loss of network connectivity. This feature eliminates this problem, allowing you to reboot each CB sequentially during image upgrades providing in-service software upgrades (ISSU).

Supported Platforms

ExtremeSwitching X670-G2, X465, X590, X690 series switches.

New CLI Commands

```
enable vpex auto-upgrade
```

```
disable vpex auto-upgrade
```

Changed CLI Commands

The following show command displays the automatic upgrade status:

```
show vpex
```

REST Support for Ethernet Virtual Private Network (EVPN)

ExtremeXOS 30.5 expands the current north-bound REST APIs to include the routing protocols needed by the Ethernet Virtual Private Network (EVPN) feature. ExtremeXOS uses the RESTCONF protocol to convert the YANG data models into REST APIs and uses the HTTP operations GET, POST, PATCH, PUT, and DELETE to provide the CRUD database operations.

Supported Platforms

ExtremeSwitching X670-G2, X465, X590, X690, X870 series switches.

REST API Support for ACL Slice Usage

ExtremeXOS 30.5 provides REST API support for GET operation to fetch ACL slice usage information.

Supported Platforms

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

Configurable GRE Protocol Type for Mirror-to-Remote-IP Address Added

This feature adds a configurable GRE protocol type for mirror-to-remote IP addresses.

Supported Platforms

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

New CLI Commands

```
configure mirror to remote-ip protocol-type [erspan-v1 | trans-ether-bridging | user-defined protocol_value]
```

RADIUS Attribute Can Accept VLAN Name

The RADIUS attribute “Tunnel-Private-Group-Id” that transmits a VLAN to use for an authenticated client can now accept a VLAN name (string) for VLANs configured with a static VLAN ID, in addition to the previously supported VLAN ID (1-4,094).

Supported Platforms

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

Limitations

If a VLAN is created without specifying a tag for the VLAN name, and used in the RADIUS attribute, it is ignored.

New Hardware Supported in ExtremeXOS 30.5

This section lists the new hardware supported in ExtremeXOS 30.5:

New ExtremeSwitching X465 Switch Models

ExtremeSwitching X465i-48W	48 10/100/1000Mb FDX/HDX MACSEC capable ports 802.3bt Type4 PoE (90W) includes fan modules, ExtremeXOS Advanced Edge license, 1 VIM5 slot, 2 PSU slots, rack mount kit. Insight capable.
ExtremeSwitching X465-24XE	24 x 1/10GbE (SFP+) capable ports. Each SFP+ access port supports MACsec (128/256) and LRM. Includes fan modules, ExtremeXOS Advanced Edge license, 1 VIM5 slot, 2 PSU slots, rack mount kit ³⁵ . Insight capable.
ExtremeSwitching X465-24S	24 x 100M/1Gbps (SFP) capable ports includes fan modules, ExtremeXOS Advanced Edge license, 1 VIM5 slot, 2 PSU slots, rack mount kit.

ExtremeSwitching X435 Series Switches

**Note**

The ExtremeSwitching X435 series switches introduce a new license level for ExtremeXOS, the Value Edge License. For more information about licenses, see the [ExtremeXOS 30.5 Feature License Requirements](#)

ExtremeSwitching X435-8T-4S	ExtremeSwitching X435 with 8 10/100/1000Mb FDX/HDX ports, and 4 ports of SFP 1G/2.5G, ExtremeXOS Value Edge license.
ExtremeSwitching X435-8P-4S	ExtremeSwitching X435 with 8 10/100/1000Mb FDX/HDX ports (30W PoE per port), and 4 ports of SFP 1G/2.5G, ExtremeXOS Value Edge license.
ExtremeSwitching X435-24T-4S	ExtremeSwitching X435 with 24 10/100/1000Mb FDX/HDX ports, and 4 ports of SFP 1G/2.5G, ExtremeXOS Value Edge license.
ExtremeSwitching X435-24P-4S	ExtremeSwitching X435 with 24 10/100/1000Mb FDX/HDX ports (30W PoE per port), and 4 ports of SFP 1G/2.5G, ExtremeXOS Value Edge license.
ExtremeSwitching X435-8P-2T-W	ExtremeSwitching X435 with 8 10/100/1000Mb FDX/HDX ports (30W PoE per port), and 2 PD powered 10/100/1000Mb FDX/HDX ports, ExtremeXOS Value Edge license.

ExtremeCloud™ IQ Agent Supported

ExtremeXOS 30.5 provides support for ExtremeCloud IQ. This release supports device discovery and basic monitoring. For more information about ExtremeCloud IQ, go to <https://www.extremenetworks.com/extremecloud-iq/>.



Important

Demo Feature: ExtremeXOS integration with ExtremeCloud IQ is a demonstration feature. Demonstration features are provided for testing purposes. Demonstration features are for lab use only and are not for use in a production environment. Please work with your Extreme Networks sales team to request a demonstration.

Supported Platforms

ExtremeSwitchingX435, X440-G2, X450-G2, X460-G2, X465

OpenFlow End of Support

OpenFlow is not supported in ExtremeXOS 30.5.

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

Open vSwitch Database Management Protocol (OVSDB) End of Support

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

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

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 30.5 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 30.5 User Guide](#).

Tested Third-Party Products

This section lists the third-party products tested for ExtremeXOS 30.5.

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

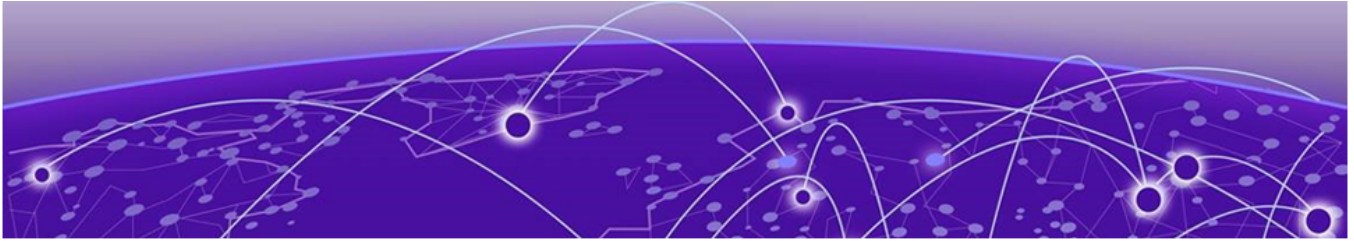
Tools used to assess ICMP attack vulnerability:

- SSPing
- Twinge
- Nuke
- WinFreeze

Port Scan Assessment

Tools used to assess port scan assessment:

- Nessus



Limits

This chapter summarizes the supported limits in ExtremeXOS 30.5.

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

- [Supported Limits for Value Edge License](#)
- [Supported Limits for Edge License](#)
- [Supported Limits for Advanced Edge License](#)
- [Supported Limits for Core License](#)

For more information about licenses, see [ExtremeXOS 30.5 Feature License Requirements](#).

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

The scaling and performance information shown in the following tables is provided for the purpose of assisting with network design. It is recommended that network architects and administrators design and manage networks with an appropriate level of network scaling “head room.” The scaling and performance figures provided have been verified using specific network topologies using limited switch configurations. There is no guarantee that the scaling and performance figures shown are applicable to all network topologies and switch configurations and are provided as a realistic estimation only. If you experience scaling and performance characteristics that you feel are sufficiently below what has been documented, contact Extreme Networks technical support for additional assistance.

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

In the Extended Edge Switching architecture, Layer-2, Layer-3, and multicast packet forwarding and filtering operations take place on the controlling bridge. The controlling bridge switch and attached BPEs (V400 Virtual Port Extenders) constitute a single, extended switch system. Therefore, the Extended Edge Switching system assumes the scale and limits from the specific controlling bridge model (for example, Extended Edge Switching X670-G2 series switches) in use. For applicable limits, see the following tables for the controlling bridge you are using.

Supported Limits for Value Edge License

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

Table 4: Supported Limits for Value Edge License

Metric	Product	Limit
AAA (local) —maximum number of admin and local user accounts.	ExtremeSwitching X435	16
Access lists (meters) —maximum number of meters.	ExtremeSwitching X435	512 ingress
Access lists (policies) —suggested maximum number of lines in a single policy file.	ExtremeSwitching X435	300,000
Access lists (policies) —maximum number of rules in a single policy file. ^a	ExtremeSwitching X435	1,024 ingress 0 egress
Access lists (slices) —number of ACL slices.	ExtremeSwitching X435	8 ingress only
ACL Per Port Meters —number of meters supported per port.	ExtremeSwitching X435	8
ACL port ranges	ExtremeSwitching X435	32
Meters Packets-Per-Second Capable	ExtremeSwitching X435	Yes
AVB (audio video bridging) —maximum number of active streams.	ExtremeSwitching X435	512
BOOTP/DHCP relay —maximum number of BOOTP or DHCP servers per virtual router.	ExtremeSwitching X435	8
BOOTP/DHCP relay —maximum number of BOOTP or DHCP servers per VLAN.	ExtremeSwitching X435	8
BOOTP/DHCP relay —maximum number of DHCPv4/v6 relay agents	ExtremeSwitching X435	30
Connectivity fault management (CFM) —maximum number of CFM domains.	ExtremeSwitching X435	8
CFM —maximum number of CFM associations.	ExtremeSwitching X435	256
CFM —maximum number of CFM up end points.	ExtremeSwitching X435	32
CFM —maximum number of CFM down end points.	ExtremeSwitching X435	32

Table 4: Supported Limits for Value Edge License (continued)

Metric	Product	Limit
CFM—maximum number of CFM remote end points per up/down end point.	ExtremeSwitching X435	2,000
CFM—maximum number of dotlag ports.	ExtremeSwitching X435	128
CFM—maximum number of CFM segments.	ExtremeSwitching X435	1,000
CFM—maximum number of MIPs.	ExtremeSwitching X435	256
DHCPv6 Prefix Delegation Snooping—Maximum number of DHCPv6 prefix delegation snooped entries.	ExtremeSwitching X435	30 (with static routes)
DHCP snooping entries—maximum number of DHCP snooping entries.	ExtremeSwitching X435	30
Dynamic ACLs—maximum number of ACLs processed per second. Note: Limits are load-dependent.	ExtremeSwitching X435 with 50 DACLs with 500 DACLs	10 5
EAPS domains—maximum number of EAPS domains.	ExtremeSwitching X435	4
EAPSV1 protected VLANs—maximum number of protected VLANs.	ExtremeSwitching X435	1,000
ERPS domains—maximum number of ERPS domains with or without CFM configured.	ExtremeSwitching X435	4
ERPSV1 protected VLANs—maximum number of protected VLANs.	ExtremeSwitching X435	1,000
ELSM (vlan-ports)—maximum number of VLAN ports.	ExtremeSwitching X435	2,000
Forwarding rate—maximum L3 software forwarding rate.	ExtremeSwitching X435	9,000 pps
FDB (unicast blackhole entries)—maximum number of unicast blackhole FDB entries.	ExtremeSwitching X435	16,019
FDB (multicast blackhole entries)—maximum number of multicast blackhole FDB entries.	ExtremeSwitching X435	16,384
FDB (maximum L2 entries)—maximum number of MAC addresses.	ExtremeSwitching X435	16,384 ⁹

Table 4: Supported Limits for Value Edge License (continued)

Metric	Product	Limit
FDB (maximum L2 entries) —maximum number of multicast FDB entries.	ExtremeSwitching X435	512
Identity management —maximum number of Blacklist entries.	ExtremeSwitching X435	512
Identity management —maximum number of Whitelist entries.	ExtremeSwitching X435	512
Identity management —maximum number of roles that can be created.	ExtremeSwitching X435	64
Identity management —maximum role hierarchy depth allowed.	ExtremeSwitching X435	5
Identity management —maximum number of attribute value pairs in a role match criteria.	ExtremeSwitching X435	16
Identity management —maximum number of child roles for a role.	ExtremeSwitching X435	8
Identity management —maximum number of policies/dynamic ACLs that can be configured per role.	ExtremeSwitching X435	8
Identity management —maximum number of LDAP servers that can be configured.	ExtremeSwitching X435	8
Identity management —maximum number of Kerberos servers that can be configured.	ExtremeSwitching X435	20
Identity management —maximum database memory size.	ExtremeSwitching X435	512
Identity management —recommended number of identities per switch. Note: Number of identities per switch is for a default identity management database size (512 Kbytes) across all platforms.	ExtremeSwitching X435	100
Identity management —recommended number of ACL entries per identity. Note: Number of ACLs per identity, based on system ACL limitation.	ExtremeSwitching X435	20

Table 4: Supported Limits for Value Edge License (continued)

Metric	Product	Limit
Identity management —maximum number of dynamic ACL entries configured as an individual dynamic rule, or as an ACL entry in a policy file.	ExtremeSwitching X435	500
IGMP snooping per VLAN filters —maximum number of VLANs supported in per-VLAN IGMP snooping mode.	ExtremeSwitching X435	500
IGMPv2 subscriber —maximum number of IGMPv2 subscribers per port. ⁿ	ExtremeSwitching X435	2,500
IGMPv2 subscriber —maximum number of IGMPv2 subscribers per switch. ⁿ	ExtremeSwitching X435	12,500
IGMPv3 maximum source per group —maximum number of source addresses per group.	ExtremeSwitching X435	250
IGMPv3 subscriber —maximum number of IGMPv3 subscribers per port. ⁿ	ExtremeSwitching X435	1,000
IGMPv3 subscriber —maximum number of IGMPv3 subscribers per switch. ⁿ	ExtremeSwitching X435	10,000
IP ARP entries in software —maximum number of IP ARP entries in software. Note: Might be limited by hardware capacity of FDB (maximum L2 entries).	ExtremeSwitching X435	20,424
IPv4 ARP entries in hardware with minimum LPM routes —maximum recommended number of IPv4 ARP entries in hardware, with minimum LPM routes present. Assumes number of IP route reserved entries is 100 or less.	ExtremeSwitching X435	509 ^h
IPv4 ARP entries in hardware with maximum LPM routes —maximum recommended number of IPv4 ARP entries in hardware, with maximum LPM routes present. Assumes number of IP route reserved entries is “maximum.”	ExtremeSwitching X435	500 ^h

Table 4: Supported Limits for Value Edge License (continued)

Metric	Product	Limit
IPv4 remote hosts in hardware with zero LPM routes —maximum recommended number of IPv4 remote hosts (hosts reachable through a gateway) in hardware when LPM routing is not used. Assumes number of IP route reserved entries is 0, and number of IPv4 ARP entries present is 100 or less.	ExtremeSwitching X435	3,100 ^h
IPv4 routes —maximum number of static IPv4 routes in software (combination of unicast and multicast routes).	ExtremeSwitching X435	32
IPv4 routes (LPM entries in hardware) — number of IPv4 routes in hardware.	ExtremeSwitching X435	32
IPv6 addresses on an interface —maximum number of IPv6 addresses on an interface.	ExtremeSwitching X435	15
IPv6 addresses on a switch —maximum number of IPv6 addresses on a switch.	ExtremeSwitching X435	15
IPv6 host entries in hardware —maximum number of IPv6 neighbor entries in hardware.	ExtremeSwitching X435	500
IPv6 routes in software —maximum number of static IPv6 routes in software.	ExtremeSwitching X435	16
IPv6 routes (LPM entries in hardware) —maximum number of IPv6 routes in hardware.	ExtremeSwitching X435	16
IP router interfaces —maximum number of VLANs performing IPv4 and/or IPv6 routing. Excludes sub-VLANs.	ExtremeSwitching X435	30
IP unicast static routes —maximum number of permanent IP unicast routes.	ExtremeSwitching X435	32
IP multinetting (secondary IP addresses) —maximum number of secondary IP addresses per VLAN.	ExtremeSwitching X435	30
Jumbo frames —maximum size supported for jumbo frames, including the CRC.	ExtremeSwitching X435	9,216

Table 4: Supported Limits for Value Edge License (continued)

Metric	Product	Limit
<p>Layer-2 IPMC forwarding caches—(IGMP/MLD/PIM snooping) in mac-vlan mode.</p> <p>Note:</p> <ul style="list-style-type: none"> The internal lookup table configuration used is "l2-and-l3". IPv6 and IPv4 L2 IPMC scaling is the same for this mode. Layer-2 IPMC forwarding cache limits—(IGMP/MLD/PIM snooping) in mixed-mode are the same. 	ExtremeSwitching X435	5,000
<p>Layer-3 IPv4 Multicast—maximum number of <S,G,V> entries installed in the hardware (IP multicast compression enabled).</p> <p>Note:</p> <ul style="list-style-type: none"> Limit value is the same for MVR senders, PIM Snooping entries, PIM SSM cache, IGMP senders, PIM cache. The internal lookup table configuration used is "more l3-and-ipmc". Assumes source-group-vlan mode as look up key. Layer 3 IPMC cache limit in mixed mode also has the same value. 	ExtremeSwitching X435	1,500
<p>Layer-3 IPv6 Multicast—maximum number of <S,G,V> entries installed in the hardware (IP multicast compression enabled).</p> <p>Note:</p> <ul style="list-style-type: none"> Limit value is the same for MLD sender per switch, PIM IPv6 cache. The internal lookup table configuration used is "more l3-and-ipmc". Assumes source-group-vlan mode as lookup key. 	ExtremeSwitching X435	700

Table 4: Supported Limits for Value Edge License (continued)

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

Table 4: Supported Limits for Value Edge License (continued)

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

Table 4: Supported Limits for Value Edge License (continued)

Metric	Product	Limit
<p>ONEPolicy Authenticated Users per Switch—maximum number of authenticated users per switch with TCI-Overwrite disabled.</p> <p>Note: The maximum values assume 75% utilization of VLAN-XLATE hash table.</p>	ExtremeSwitching X435	192
<p>ONEPolicy Authenticated Users per Port per Switch— maximum number of authenticated users per port per switch with TCI overwrite disabled.</p> <p>Note: The maximum values assume 75% utilization of VLAN-XLATE hash table.</p>	ExtremeSwitching X435	187
<p>ONEPolicy Permit/Deny Traffic Classification Rules Types—total maximum number of unique permit/deny traffic classification rules types (system/stack).</p>	ExtremeSwitching X435	184
<p>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).</p>	ExtremeSwitching X435	128
<p>ONEPolicy Permit/Deny Traffic Classification Rules Types— maximum number of unique Layer 2 permit/deny traffic classification rules (ethertype/port).</p>	ExtremeSwitching X435	56
<p>Policy-based routing (PBR) redundancy—maximum number of flow-redirects.</p>	ExtremeSwitching X435	256 ^o
<p>Policy-based routing (PBR) redundancy—maximum number of next hops per each flow-direct.</p>	ExtremeSwitching X435	32 ^o
<p>Private VLANs—maximum number of subscribers. Assumes a minimum of one port per network and subscriber VLAN.</p>	ExtremeSwitching X435	15

Table 4: Supported Limits for Value Edge License (continued)

Metric	Product	Limit
<p>Private VLANs—maximum number of private VLANs with an IP address on the network VLAN.</p> <p>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.</p>	ExtremeSwitching X435	15
<p>Private VLANs—maximum number of private VLANs in an L2-only environment.</p>	ExtremeSwitching X435	15
<p>Route policies—suggested maximum number of lines in a route policy file.</p>	ExtremeSwitching X435	10,000
<p>Spanning Tree (maximum STPDs)—maximum number of Spanning Tree Domains on port mode EMISTP.</p>	ExtremeSwitching X435	16
<p>Spanning Tree PVST+—maximum number of port mode PVST domains.</p> <p>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).</p>	ExtremeSwitching X435	128
<p>Spanning Tree—maximum number of multiple spanning tree instances (MSTI) domains.</p>	ExtremeSwitching X435	16
<p>Spanning Tree—maximum number of VLANs per MSTI.</p> <p>Note: Maximum number of 10 active ports per VLAN when all 100 VLANs are in one MSTI.</p>	ExtremeSwitching X435	100
<p>Spanning Tree—maximum number of VLANs on all MSTP instances.</p>	ExtremeSwitching X435	256

Table 4: Supported Limits for Value Edge License (continued)

Metric	Product	Limit
Spanning Tree (802.1d domains) —maximum number of 802.1d domains per port.	ExtremeSwitching X435	1
Spanning Tree (number of ports) —maximum number of ports including all Spanning Tree domains.	ExtremeSwitching X435	1,024
Spanning Tree (maximum VLANs) —maximum number of STP-protected VLANs (dot1d and dot1w).	ExtremeSwitching X435	256
SSH (number of sessions) —maximum number of simultaneous SSH sessions.	ExtremeSwitching X435	8
Static MAC multicast FDB entries —maximum number of permanent multicast MAC entries configured into the FDB.	ExtremeSwitching X435	1,024
Syslog servers —maximum number of simultaneous Syslog servers that are supported.	ExtremeSwitching X435	16
Syslog targets —maximum number of configurable Syslog targets.	ExtremeSwitching X435	16
Telnet (number of sessions) —maximum number of simultaneous Telnet sessions.	ExtremeSwitching X435	8
Virtual routers —maximum number of user-created virtual routers that can be created on a switch.	ExtremeSwitching X435	16 (local-only VRs)
Virtual router forwarding (VRFs) —maximum number of VRFs that can be created on a switch. Note: * Subject to other system limitations.	ExtremeSwitching X435	16 (local-only VRFs)
VLAN aggregation —maximum number of port-VLAN combinations on any one superVLAN and all of its subVLANs.	ExtremeSwitching X435	1,000
VLANs —includes all VLANs.	ExtremeSwitching X435	4,094
VLANs (Layer 2) —maximum number of Layer 2 VLANs.	ExtremeSwitching X435	4,094

Table 4: Supported Limits for Value Edge License (continued)

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

Supported Limits for Edge License

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

Table 5: Supported Limits for Edge License

Metric	Product	Limit
AAA (local) —maximum number of admin and local user accounts.	All platforms, except X435	16
Access lists (meters) —maximum number of meters.	ExtremeSwitching X620, X440-G2	1,024 ingress 256 egress
	ExtremeSwitching X670-G2, X450-G2, X460-G2	1,024 ingress 512 egress
	ExtremeSwitching X870, X690, X590, X465	2,048 ingress 512 egress
Access lists (policies) —suggested maximum number of lines in a single policy file.	All platforms, except X435	300,000
Access lists (policies) —maximum number of rules in a single policy file. ^a	ExtremeSwitching X460-G2, X450-G2, X670-G2	4,096 ingress 1,024 egress
	ExtremeSwitching X620, X440-G2	2,048 ingress 512 egress
	ExtremeSwitching X870	3,072 ingress 1,024 egress
	ExtremeSwitching X690, X590, X465	8,192 ingress 1,024 egress
Access lists (policies) —maximum number of rules in a single policy file in first stage (VFP).	ExtremeSwitching X450-G2, X460-G2	2,048 ingress only
	ExtremeSwitching X670-G2, X870, X690	1,024 ingress only
	ExtremeSwitching X620, X440-G2	512 ingress only
	ExtremeSwitching X590, X465	2,048 ingress only
Access lists (slices) —number of ACL slices.	ExtremeSwitching X460-G2, X450-G2	16 ingress 4 egress
	ExtremeSwitching X670-G2, X690, X590, X465	12 ingress 4 egress
	ExtremeSwitching X440-G2, X620	8 ingress 4 egress
	ExtremeSwitching X870	4 ingress 4 egress
Access lists (slices) —number of ACL slices in first stage (VFP).	ExtremeSwitching X450-G2, X460-G2, X670-G2, X465, X620, X440-G2, X870, X690, X590	4 ingress only
ACL Per Port Meters —number of meters supported per port.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465	16

Table 5: Supported Limits for Edge License (continued)

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

Table 5: Supported Limits for Edge License (continued)

Metric	Product	Limit
<p>CFM—maximum number of CFM up end points.</p> <p>Note: With Advanced Edge license or higher.</p>	ExtremeSwitching X460-G2, X670-G2, X450-G2, X440-G2, X620, X870, X690, X590, X465	32
<p>CFM—maximum number of CFM down end points.</p> <p>Note: With Advanced Edge license or higher.</p>	<p>ExtremeSwitching X670-G2, X450-G2, X440-G2, X620, X870, X690, X590, X465</p> <p>ExtremeSwitching X460-G2</p>	<p>32</p> <p>256 (non-load shared ports) 32 (load shared ports)</p>
<p>CFM—maximum number of CFM remote end points per up/down end point.</p> <p>Note: With Advanced Edge license or higher.</p>	ExtremeSwitching X460-G2, X670-G2, X450-G2, X440-G2, X620, X870, X690, X590, X465	2,000
<p>CFM—maximum number of dot1ag ports.</p> <p>Note: With Advanced Edge license or higher.</p>	ExtremeSwitching X460-G2, X670-G2, X450-G2, X440-G2, X620, X870, X690, X590, X465	128
<p>CFM—maximum number of CFM segments.</p> <p>Note: With Advanced Edge license or higher.</p>	ExtremeSwitching X460-G2, X670-G2, X450-G2, X440-G2, X620, X870, X690, X590, X465	1,000
<p>CFM—maximum number of MIPs.</p> <p>Note: With Advanced Edge license or higher.</p>	ExtremeSwitching X460-G2, X670-G2, X450-G2, X620, X440-G2, X870, X690, X590, X465	256
<p>CLEAR-Flow—total number of rules supported. The ACL rules plus CLEAR-Flow rules must be less than the total number of supported ACLs.</p>	<p>ExtremeSwitching X460-G2, X670-G2, X450-G2</p> <p>ExtremeSwitching X440-G2, X620</p> <p>ExtremeSwitching X870</p> <p>ExtremeSwitching X690, X590, X465</p>	<p>4,094</p> <p>1,024</p> <p>3,072</p> <p>8,192</p>
<p>Data Center Bridging eXchange (DCBX) protocol Type Length Value (TLVs)—maximum number of DCBX application TLVs.</p>	ExtremeSwitching X460-G2, X670-G2, X450-G2, X440-G2, X620, X870, X690, X590, X465	8

Table 5: Supported Limits for Edge License (continued)

Metric	Product	Limit
DHCPv6 Prefix Delegation Snooping —Maximum number of DHCPv6 prefix delegation snooped entries.	ExtremeSwitching X460-G2, X670-G2, X450-G2, X620, X440-G2, X870, X690, X590, X465	256 (with underlying protocol RIPng) 128 (with underlying protocol OSPFv3) 1,024 (with static routes)
DHCP snooping entries —maximum number of DHCP snooping entries.	ExtremeSwitching X460-G2, X670-G2, X450-G2, X620, X440-G2, X870, X690, X590, X465	2,048
Dynamic ACLs —maximum number of ACLs processed per second. Note: Limits are load-dependent.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465 with 50 DACLs with 500 DACLs	10 5
EAPS domains —maximum number of EAPS domains. Note: An EAPS ring that is being spatially reused cannot have more than four configured EAPS domains. Note: You can increase the number of domains by upgrading to the Advanced Edge license.	ExtremeSwitching X670-G2, X450-G2, X460-G2, X440-G2, X620, X870, X690, X590, X465	4
EAPSV1 protected VLANs —maximum number of protected VLANs.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2 ExtremeSwitching X870, X690, X590, X465	1,000 2,000
ERPS domains —maximum number of ERPS domains with or without CFM configured. Note: You can increase the number of domains by upgrading to the Advanced Edge license.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465	4
ERPSv1 protected VLANs —maximum number of protected VLANs.	ExtremeSwitching X870, X690, X590, X465 ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2	2,000 1,000
ERPSv2 protected VLANs —maximum number of protected VLANs.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X870, X690, X590, X465 ExtremeSwitching X620, X440-G2	2,000 500

Table 5: Supported Limits for Edge License (continued)

Metric	Product	Limit
ELSM (vlan-ports)—maximum number of VLAN ports.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X870, X690, X590, X465	5,000
	ExtremeSwitching X440-G2	4,000
Extended Edge Switching maximum BPEs—maximum number of attached bridge port extenders (BPEs).	ExtremeSwitching X670-G2, X690, X590, X465	48
Extended Edge Switching maximum cascade ports—maximum number of upstream ports on bridge port extenders (BPEs).	ExtremeSwitching X670-G2, X690, X590, X465	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).	ExtremeSwitching X670-G2, X465, X690, X590	4
Extended Edge Switching maximum ring BPEs—maximum number of bridge port extenders (BPEs) in a ring topology.	ExtremeSwitching X670-G2, X465, X690, X590	8
Extended Edge Switching VLAN+ port memberships—maximum number of VLAN+ (extended) port memberships.	ExtremeSwitching X670-G2, X690, X590, X465	12,000 in hash mode (default) 131,000 in port-group mode
Forwarding rate—maximum L3 software forwarding rate.	ExtremeSwitching X690, X590, X465	30,000 pps
	ExtremeSwitching X870	32,000 pps
	ExtremeSwitching X450-G2	16,000 pps
	ExtremeSwitching X460-G2	17,000 pps
	ExtremeSwitching X620	10,000 pps
	ExtremeSwitching X670-G2	15,000 pps
	ExtremeSwitching X440-G2	9,000 pps
FDB (unicast blackhole entries)—maximum number of unicast blackhole FDB entries.	ExtremeSwitching X460-G2	49,152 ^f
	X670-G2	294,912 ^f
	ExtremeSwitching X450-G2	34,816 ^f
	ExtremeSwitching X620, X440-G2	16,384 ^f
	ExtremeSwitching X870	139,264 ^f
ExtremeSwitching X690, X590, X465	278,528 ^f	

Table 5: Supported Limits for Edge License (continued)

Metric	Product	Limit
FDB (multicast blackhole entries) —maximum number of multicast blackhole FDB entries.	ExtremeSwitching X460-G2, X450-G2, X440-G2, X620	1,024
	ExtremeSwitching X670-G2, X870, X690, X590, X465	4,096
FDB (maximum L2 entries) —maximum number of MAC addresses.	ExtremeSwitching X460-G2	98,300 ^g
	ExtremeSwitching X670-G2	294,912 ^g
	ExtremeSwitching X450-G2	68,000 ^g
	ExtremeSwitching X620, X440-G2	16,384
	ExtremeSwitching X870	139,264 ^g
FDB (maximum L2 entries) —maximum number of multicast FDB entries.	ExtremeSwitching X690, X590, X465	278,528 ^g
	ExtremeSwitching X670-G2, X870, X690, X590, X465	4,096
FDB (maximum L2 entries) —maximum number of multicast FDB entries.	ExtremeSwitching X450-G2, X460-G2, X620, X440-G2	1,024
	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465	512
Identity management —maximum number of Blacklist entries.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465	512
Identity management —maximum number of Whitelist entries.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465	512
Identity management —maximum number of roles that can be created.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465	64
Identity management —maximum role hierarchy depth allowed.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465	5
Identity management —maximum number of attribute value pairs in a role match criteria.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465	16
Identity management —maximum number of child roles for a role.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465	8
Identity management —maximum number of policies/dynamic ACLs that can be configured per role.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465	8
Identity management —maximum number of LDAP servers that can be configured.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465	8
Identity management —maximum number of Kerberos servers that can be configured.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465	20
Identity management —maximum database memory size.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465	512

Table 5: Supported Limits for Edge License (continued)

Metric	Product	Limit
Identity management —recommended number of identities per switch. Note: Number of identities per switch is for a default identity management database size (512 Kbytes) across all platforms.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465	100
Identity management —recommended number of ACL entries per identity. Note: Number of ACLs per identity, based on system ACL limitation.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465	20
Identity management —maximum number of dynamic ACL entries configured as an individual dynamic rule, or as an ACL entry in a policy file.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465	500
IGMP snooping per VLAN filters —maximum number of VLANs supported in per-VLAN IGMP snooping mode.	ExtremeSwitching X460-G2, X870 ExtremeSwitching X450-G2 ExtremeSwitching X670-G2 ExtremeSwitching X620, X440-G2 ExtremeSwitching X690, X590, X465	1,500 2,048 2,000 1,000 4,000
IGMPv1/v2 SSM-map entries —maximum number of IGMPv1/v2 SSM mapping entries.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465	500
IGMPv1/v2 SSM-map entries —maximum number of sources per group in IGMPv1/v2 SSM mapping entries.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465	50
IGMPv2 subscriber —maximum number of IGMPv2 subscribers per port. ⁿ	ExtremeSwitching X670-G2, X460-G2, X450-G2 ExtremeSwitching X440-G2, X620 ExtremeSwitching X870, X690, X590, X465	4,000 3,500 4,000
IGMPv2 subscriber —maximum number of IGMPv2 subscribers per switch. ⁿ	ExtremeSwitching X670-G2 ExtremeSwitching X460-G2, X450-G2 ExtremeSwitching X620, X440-G2 ExtremeSwitching X465, X870, X690, X590	30,000 20,000 17,500 45,000
IGMPv3 maximum source per group —maximum number of source addresses per group.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X770, X620, X440-G2, X870, X690, X590, X465	250

Table 5: Supported Limits for Edge License (continued)

Metric	Product	Limit
IGMPv3 subscriber—maximum number of IGMPv3 subscribers per port. ⁿ	ExtremeSwitching X670-G2, X460-G2, X450-G2	4,000
	ExtremeSwitching X440-G2, X620	3,500
	ExtremeSwitching X870, X690, X590, X465	4,000
IGMPv3 subscriber—maximum number of IGMPv3 subscribers per switch. ⁿ	ExtremeSwitching X460-G2, X450-G2	20,000
	ExtremeSwitching X670-G2	30,000
	ExtremeSwitching X620, X440-G2	17,500
	ExtremeSwitching X870, X690, X590, X465	45,000
IP ARP entries in software—maximum number of IP ARP entries in software. Note: Might be limited by hardware capacity of FDB (maximum L2 entries).	ExtremeSwitching X670-G2	131,072 (up to) ^h
	ExtremeSwitching X460-G2	57,344 (up to) ^h
	ExtremeSwitching X450-G2	47,000 (up to) ^h
	ExtremeSwitching X440-G2, X620	20,480
	ExtremeSwitching X870	94,206 (up to) ^h
	ExtremeSwitching X690, X590, X465	157,694 (up to) ^h
IPv4 ARP entries in hardware with minimum LPM routes—maximum recommended number of IPv4 ARP entries in hardware, with minimum LPM routes present. Assumes number of IP route reserved entries is 100 or less.	ExtremeSwitching X870	74,000 (up to) ^h
	ExtremeSwitching X460-G2	50,000 (up to) ^h
	ExtremeSwitching X670-G2	108,000 (up to) ^h
	ExtremeSwitching X450-G2	39,000 (up to) ^h
	ExtremeSwitching X620	1,500
	ExtremeSwitching X440-G2	1,000
	ExtremeSwitching X690, X590, X465	119,000 (up to) ^h

Table 5: 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
	ExtremeSwitching X460-G2	43,000 (up to) ^h
	ExtremeSwitching X670-G2	98,000 (up to) ^h
	ExtremeSwitching X450-G2	29,000 (up to) ^h
	ExtremeSwitching X620	1,500
	ExtremeSwitching X440-G2	1,000
	ExtremeSwitching X690, X590, X465	109,000 (up to) ^h
IP flow information export (IPFIX)—number of simultaneous flows.	ExtremeSwitching X460-G2	2,048 ingress 2,048 egress
	ExtremeSwitching X450-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465	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
	ExtremeSwitching X460-G2	73,000 ^h
	ExtremeSwitching X670-G2	176,000 (up to) ^h
	ExtremeSwitching X450-G2	61,000 (up to) ^h
	ExtremeSwitching X440-G2, X620	3,500
IPv4 routes—maximum number of IPv4 routes in software (combination of unicast and multicast routes), including static and from all routing protocols.	ExtremeSwitching X460-G2, X450-G2, X440-G2, X620	25,000
	ExtremeSwitching X670-G2, X690, X870, X590, X465	131,000
IPv4 routes (LPM entries in hardware)— number of IPv4 routes in hardware.	ExtremeSwitching X460-G2	12,000
	ExtremeSwitching X450-G2	16,000
	ExtremeSwitching X670-G2, X690, X870, X590, X465	131,000 ^q
	ExtremeSwitching X620, X440-G2	480
IPv6 6in4 tunnel—maximum number of IPv6 6in4 tunnels.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X870, X690, X590, X465	255
	ExtremeSwitching X440-G2, X620	N/A

Table 5: Supported Limits for Edge License (continued)

Metric	Product	Limit
IPv6 6to4 tunnel—maximum number of IPv6 6to4 tunnels.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X870, X690, X590, X465	1 (per virtual router)
	ExtremeSwitching X440-G2, X620	N/A
IPv6 addresses on an interface—maximum number of IPv6 addresses on an interface.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465	255
IPv6 addresses on a switch—maximum number of IPv6 addresses on a switch.	ExtremeSwitching X670-G2, X460-G2, X450-G2, X870, X690, X590, X465	2,048
	ExtremeSwitching X620, X440-G2	510
IPv6 host entries in hardware—maximum number of IPv6 neighbor entries in hardware.	ExtremeSwitching X670-G2	36,750 ^h
	ExtremeSwitching X460-G2	22,000 ^h
	ExtremeSwitching X450-G2	12,000 ^h
	ExtremeSwitching X440-G2	1,000
	ExtremeSwitching X620	1,500
	ExtremeSwitching X690, X590, X465	24,500 ^h
	ExtremeSwitching X870	22,000 ^h
IPv6 routes in software—maximum number of IPv6 routes in software, including static routes and routes from all routing protocols.	ExtremeSwitching X450-G2, X460-G2, X620, X440-G2	25,000
	ExtremeSwitching X670-G2, X690, X870, X590, X465	65,000 ^q
IPv6 routes (LPM entries in hardware)—maximum number of IPv6 routes in hardware.	ExtremeSwitching X460-G2	6,000
	ExtremeSwitching X450-G2	8,000
	ExtremeSwitching X670-G2, X690, X870, X590, X465	65,000 ^q
	ExtremeSwitching X620, X440-G2	240
IPv6 routes with a mask greater than 64 bits in hardware—maximum number of such IPv6 LPM routes in hardware.	ExtremeSwitching X670-G2, X690, X870, X590, X465	8,192 ^r
	ExtremeSwitching X440-G2, X620	1,024
	ExtremeSwitching X450-G2, X460-G2	2,048
IPv6 route sharing in hardware—route mask lengths for which ECMP is supported in hardware.	ExtremeSwitching X460-G2, X450-G2, X620	0-64 >64 single path only
	ExtremeSwitching X670-G2, X690, X870, X590, X465	0-128 ^r
	ExtremeSwitching X440-G2	Not supported
IP router interfaces—maximum number of VLANs performing IPv4 and/or IPv6 routing. Excludes sub-VLANs.	ExtremeSwitching X460-G2, X670-G2, X450-G2, X870, X690, X590, X465	2,048
	ExtremeSwitching X620, X440-G2	510

Table 5: Supported Limits for Edge License (continued)

Metric	Product	Limit
IP multicast static routes —maximum number of permanent multicast IP routes.	ExtremeSwitching X460-G2, X670-G2, X450-G2, X870, X690, X590, X465	1,024
IP unicast static routes —maximum number of permanent IP unicast routes.	ExtremeSwitching X460-G2, X670-G2, X450-G2, X870, X690, X590, X465	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.	ExtremeSwitching X460-G2, X670-G2, X450-G2, X620, X870, X690, X590, X465	2, 4, 8, 16, 32, or 64
	ExtremeSwitching X440-G2	N/A

Table 5: Supported Limits for Edge License (continued)

Metric	Product	Limit
IP route sharing (total combinations of gateway sets)—maximum number of combinations of sets of adjacent gateways used by multipath OSPF, BGP, IS-IS, or static routes.	ExtremeSwitching X670-G2	
	if maximum gateways is 2	1,022
	if maximum gateways is 4	1,022
	if maximum gateways is 8	1,022
	if maximum gateways is 16 (default)	1,022
	if maximum gateways is 32	510
	if maximum gateways is 64	254
	ExtremeSwitching X460-G2, X450-G2	
	if maximum gateways is 2	1,022
	if maximum gateways is 4	1,022
	if maximum gateways is 8	510
	if maximum gateways is 16 (default)	254
	if maximum gateways is 32	126
	if maximum gateways is 64	62
	ExtremeSwitching X620	
	if maximum gateways is 2	126
	if maximum gateways is 4	126
	if maximum gateways is 8	126
	if maximum gateways is 16 (default)	126
	if maximum gateways is 32	62
if maximum gateways is 64	30	
ExtremeSwitching X690, X590, X465		
if maximum gateways is 2	4,094	
if maximum gateways is 4	4,094	
if maximum gateways is 8	2,046	
if maximum gateways is 16 (default)	1,022	
if maximum gateways is 32	510	
if maximum gateways is 64	254	
Note: The values here represent the maximum attainable ECMP groups of which, due to the RIOT feature, half are reserved for overlay and half for underlay routing. For more information about RIOT, see the ExtremeXOS 30.5 User Guide .		
ExtremeSwitching X870		
if maximum gateways is 2	2,046	
if maximum gateways is 4	2,046	
if maximum gateways is 8	2,046	

Table 5: Supported Limits for Edge License (continued)

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

Table 5: Supported Limits for Edge License (continued)

Metric	Product	Limit
Layer-2 IPMC forwarding caches —(IGMP/MLD/PIM snooping) in mac-vlan mode. Note: <ul style="list-style-type: none"> The internal lookup table configuration used is "I2-and-I3". IPv6 and IPv4 L2 IPMC scaling is the same for this mode. Layer-2 IPMC forwarding cache limits—(IGMP/MLD/PIM snooping) in mixed-mode are the same. 	ExtremeSwitching X670-G2	73,000
	ExtremeSwitching X460-G2	24,000
	ExtremeSwitching X450-G2	14,000
	ExtremeSwitching X620, X440-G2	5,000
	ExtremeSwitching X870	36,000
	ExtremeSwitching X690, X590, X465	67,000
Layer-3 IPv4 Multicast —maximum number of <S,G,V> entries installed in the hardware (IP multicast compression enabled). Note: <ul style="list-style-type: none"> 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 I3-and-ipmc". Assumes source-group-vlan mode as look up key. Layer 3 IPMC cache limit in mixed mode also has the same value. 	ExtremeSwitching X460-G2	26,000
	ExtremeSwitching X450-G2	21,000
	ExtremeSwitching X670-G2	77,500
	ExtremeSwitching X620, X440-G2	1,500
	ExtremeSwitching X870	52,000
	ExtremeSwitching X690, X590, X465	93,000
Layer-3 IPv6 Multicast —maximum number of <S,G,V> entries installed in the hardware (IP multicast compression enabled). Note: <ul style="list-style-type: none"> Limit value is the same for MLD sender per switch, PIM IPv6 cache. The internal lookup table configuration used is "more I3-and-ipmc". Assumes source-group-vlan mode as lookup key. 	ExtremeSwitching X670-G2	30,000
	ExtremeSwitching X460-G2	14,000
	ExtremeSwitching X450-G2	10,000
	ExtremeSwitching X620, X440-G2	700
	ExtremeSwitching X870	18,000
	ExtremeSwitching X690, X590, X465	48,000

Table 5: Supported Limits for Edge License (continued)

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

Table 5: Supported Limits for Edge License (continued)

Metric	Product	Limit
Maximum mirroring instances	ExtremeSwitching X450-G2, X460-G2, X670-G2, X870, X690, X590, X465 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: <ol style="list-style-type: none"> 1. 4 ingress 2. 3 ingress + 1 egress 3. 2 ingress + 2 egress 4. 2 (ingress + egress) 5. 1 (ingress + egress) + 2 ingress 6. 1 (ingress + egress) + 1 egress + 1 ingress 	16 (including default mirroring instance)
	ExtremeSwitching X620, X440-G2 Note: For stacks containing X620 or X440-G2, maximum supported egress mirror instances is 1.	1 (egress)
Mirroring (filters) —maximum number of mirroring filters. Note: This is the number of filters across all the active mirroring instances.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465	128
Mirroring, one-to-many (filters) —maximum number of one-to-many mirroring filters. Note: This is the number of filters across all the active mirroring instances.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465	128
Mirroring, one-to-many (monitor port) —maximum number of one-to-many monitor ports.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465	16

Table 5: Supported Limits for Edge License (continued)

Metric	Product	Limit
MLAG ports—maximum number of MLAG ports allowed.	ExtremeSwitching X670-G2, X690	71
	ExtremeSwitching X440-G2, X450-G2	51
	ExtremeSwitching X460-G2	53
	ExtremeSwitching X620	15
	ExtremeSwitching X870	127
	ExtremeSwitching X590, X465	35
MLAG peers—maximum number of MLAG peers allowed.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465	2
MPLS RSVP-TE interfaces—maximum number of interfaces.	ExtremeSwitching X460-G2, X670-G2, X590, X465, X870	32
	ExtremeSwitching X450-G2, X440-G2, X620	N/A
MPLS RSVP-TE ingress LSPs—maximum number of ingress LSPs.	ExtremeSwitching X460-G2, X670-G2, X870, X590, X690, X465	2,000
	ExtremeSwitching X450-G2, X440-G2, X620, X590, X465	N/A
MPLS RSVP-TE egress LSPs—maximum number of egress LSPs.	ExtremeSwitching X460-G2, X670-G2, X870, X690, X590, X465	2,000
	ExtremeSwitching X450-G2, X440-G2, X620	N/A
MPLS RSVP-TE transit LSPs—maximum number of transit LSPs.	ExtremeSwitching X460-G2, X670-G2	2,000
	ExtremeSwitching X870, X690, X590, X465	4,000
	ExtremeSwitching X450-G2, and ExtremeSwitching X440-G2, X620	N/A
MPLS RSVP-TE paths—maximum number of paths.	ExtremeSwitching X460-G2	1,000
	ExtremeSwitching X670-G2, X870, X690, X590, X465	2,000
	ExtremeSwitching X450-G2, X440-G2, X620	N/A
MPLS RSVP-TE profiles—maximum number of profiles.	ExtremeSwitching X460-G2	1,000
	ExtremeSwitching X670-G2, X870, X690, X590, X465	2,000
	ExtremeSwitching X450-G2, X440-G2, X620	N/A
MPLS RSVP-TE EROs—maximum number of EROs per path.	ExtremeSwitching X460-G2, X670-G2, X870, X690, X590, X465	64
	ExtremeSwitching X450-G2, and ExtremeSwitching X440-G2, X620	N/A
MPLS LDP peers—maximum number of MPLS LDP peers per switch.	ExtremeSwitching X670-G2, X460-G2, X870, X690, X590, X465	128
	ExtremeSwitching X450-G2, X440-G2, X620	N/A

Table 5: Supported Limits for Edge License (continued)

Metric	Product	Limit
MPLS LDP adjacencies—maximum number of MPLS LDP adjacencies per switch.	ExtremeSwitching X460-G2	50
	ExtremeSwitching X670-G2, X870, X690 X590, X465	64
	ExtremeSwitching X450-G2, X440-G2, X620	N/A
MPLS LDP ingress LSPs—maximum number of MPLS LSPs that can originate from a switch.	ExtremeSwitching X670-G2, X460-G2, X870, X690 X590, X465	2,048
	ExtremeSwitching X450-G2, X440-G2, X620	N/A
MPLS LDP-enabled interfaces—maximum number of MPLS LDP configured interfaces per switch.	ExtremeSwitching X670-G2, X460-G2, X870, X690 X590, X465	128
	ExtremeSwitching X450-G2, X440-G2, X620	N/A
MPLS LDP transit LSPs—maximum number of MPLS transit LSPs per switch.	ExtremeSwitching X670-G2, X460-G2, X870, X690 X590, X465	4,000
	ExtremeSwitching X450-G2, X440-G2, X620	N/A
MPLS LDP egress LSPs—maximum number of MPLS egress LSPs that can terminate on a switch.	ExtremeSwitching X670-G2, X460-G2, X870, X690 X590, X465	4,000
	ExtremeSwitching X450-G2, X440-G2, X620	N/A
MPLS static egress LSPs—maximum number of static egress LSPs.	ExtremeSwitching X460-G2	7,116
	ExtremeSwitching X870, X690, X590, X465, X670-G2	8,000
	ExtremeSwitching X450-G2, X440-G2, X620	N/A
MPLS static ingress LSPs—maximum number of static ingress LSPs.	ExtremeSwitching X460-G2, X870, X690 X590, X465	4,000
	ExtremeSwitching X670-G2	2,048
	ExtremeSwitching X450-G2, X440-G2, X620	N/A
MPLS static transit LSPs—maximum number of static transit LSPs	ExtremeSwitching X670-G2, X460-G2, X870, X690 X590, X465	4,000
	ExtremeSwitching X450-G2, X440-G2, X620	N/A
Multicast listener discovery (MLD) snooping per-VLAN filters—maximum number of VLANs supported in per-VLAN MLD snooping mode.	ExtremeSwitching X460-G2, X670-G2, X870	768
	ExtremeSwitching X450-G2	508
	ExtremeSwitching X620, X440-G2	256
	ExtremeSwitching X690, X590, X465	1,500
Multicast listener discovery (MLD)v1 subscribers—maximum number of MLDv1 subscribers per port. ⁿ	ExtremeSwitching X670-G2, X450-G2, X460-G2	4,000
	ExtremeSwitching X620, X440-G2	3,500
	ExtremeSwitching X870, X690, X590, X465	4,000

Table 5: Supported Limits for Edge License (continued)

Metric	Product	Limit
Multicast listener discovery (MLD)v1 subscribers —maximum number of MLDv1 subscribers per switch. ⁿ	ExtremeSwitching X460-G2, X450-G2, X620, X440-G2	10,000
	ExtremeSwitching X670-G2	30,000
	ExtremeSwitching X870, X690, X590, X465	45,000
Multicast listener discovery (MLD)v2 subscribers —maximum number of MLDv2 subscribers per port. ⁿ	ExtremeSwitching X670-G2, X460-G2, X450-G2	4,000
	ExtremeSwitching X620, X440-G2	3,500
	ExtremeSwitching X870, X690, X590, X465	4,000
Multicast listener discovery (MLD)v2 subscribers —maximum number of MLDv2 subscribers per switch. ⁿ	ExtremeSwitching X670-G2	30,000
	ExtremeSwitching X460-G2, X450-G2, X620, X440-G2	10,000
	ExtremeSwitching X870, X690, X590, X465	45,000
Multicast listener discovery (MLD)v2 maximum source per group —maximum number of source addresses per group.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465	200
Multicast listener discovery (MLD) SSM-map entries —maximum number of MLD SSM mapping entries.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X870, X690, X590, X465	500
	ExtremeSwitching X440-G2, X620	50
Multicast listener discovery (MLD) SSM-MAP entries —maximum number of sources per group in MLD SSM mapping entries.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465	50
Network Login —maximum number of clients being authenticated on MAC-based VLAN enabled ports.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465	1,024
Network Login —maximum number of clients being authenticated with policy mode enabled with TCI overwrite enabled.	ExtremeSwitching X450-G2, X460-G2, X590, X465	1,024
	ExtremeSwitching X670-G2, X870, X690	512
	ExtremeSwitching X620, X440-G2	256
Network Login —maximum number of dynamic VLANs.	ExtremeSwitching X460-G2, X450-G2, X670-G2, X870, X690, X590, X465	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.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465	10
Network Service Identifiers (NSI)/ VLAN mappings —maximum number of VLANs to NSI mappings.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465	94

Table 5: Supported Limits for Edge License (continued)

Metric	Product	Limit
Node Alias —maximum number of entries per slot.	ExtremeSwitching X450-G2, X460-G2, X670-G2 X620, X440-G2, X870, X690, X590, X465	8,192
ONEPolicy Roles/Profiles —maximum number of policy roles/profiles.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465	63
ONEPolicy Rules per Role/Profile —maximum number of rules per role/policy.	ExtremeSwitching X450-G2, X460-G2 ExtremeSwitching X670-G2, X870 ExtremeSwitching X620, X440-G2 ExtremeSwitching X465, X690, X590	IPv6 rules: 256 IPv4 rules: 256 L2 Rules: 184 MAC Rules: 256 IPv6 Rules: 256 L2 Rules: 184 MAC Rules: 256 IPv4 Rules: 256 IPv6 and Mac Rules: 0 Ipv4 Rules: 256 (per switch) L2 Rules: 184 (per switch) IPv4 Rules: 512 IPv6 Rules: 512 MAC Rules: 512 L2 Rules: 440
ONEPolicy Authenticated Users per Switch —maximum number of authenticated users per switch only with TCI-Overwrite enabled.	ExtremeSwitching X450-G2, X460-G2, X590, X465 ExtremeSwitching X670-G2, X690, X870 ExtremeSwitching X620, X440-G2 Stacking	1,024 512 256 Depends on the stack nodes.
ONEPolicy Authenticated Users per Switch —maximum number of authenticated users per switch with TCI-Overwrite disabled.	ExtremeSwitching X690, X590, X465 ExtremeSwitching X670-G2, X460-G2, X870 ExtremeSwitching X450-G2 ExtremeSwitching X620, X440-G2 Stacking	24,576 12,288 6,144 1,536 1,536–65,534
Note: The maximum values assume 75% utilization of VLAN-XLATE hash table.		

Table 5: Supported Limits for Edge License (continued)

Metric	Product	Limit
ONEPolicy Authenticated Users per Port per Switch — maximum number of authenticated users per port per switch with TCI overwrite disabled. Note: The maximum values assume 75% utilization of VLAN-XLATE hash table.	ExtremeSwitching X450-G2	6,144
	ExtremeSwitching X460-G2, X670-G2, X870	12,288
	ExtremeSwitching X690, X590, X465	24,576
	ExtremeSwitching X440-G2, X620	1,536
ONEPolicy Authenticated Users per Port per Switch — maximum number of authenticated users per port with only with TCI-Overwrite enabled.	ExtremeSwitching X450-G2, X460-G2, X590, X465	1,024
	ExtremeSwitching X670-G2, X870, X690	512
	ExtremeSwitching X620, X440-G2	256
ONEPolicy Permit/Deny Traffic Classification Rules Types —total maximum number of unique permit/deny traffic classification rules types (system/stack).	ExtremeSwitching X450-G2, X460-G2, X670-G2, X870	952
	ExtremeSwitching X620, X440-G2	440
	ExtremeSwitching X690, X590, X465	1,976
ONEPolicy Permit/Deny Traffic Classification Rules Types — maximum number of unique MAC permit/deny traffic classification rules types (macsource/macdest).	ExtremeSwitching X450-G2, X460-G2, X670-G2, X870	256
	ExtremeSwitching X620, X440-G2	N/A
	ExtremeSwitching X690, X590, X465	512
ONEPolicy Permit/Deny Traffic Classification Rules Types — maximum number of unique IPv6 permit/deny traffic classification rules types (ipv6dest).	ExtremeSwitching X450-G2, X460-G2, X670-G2, X870	256
	ExtremeSwitching X620, X440-G2	N/A
	ExtremeSwitching X690, X590, X465	512
ONEPolicy Permit/Deny Traffic Classification Rules Types — maximum number of unique IPv4 permit/deny traffic classification rules (typesipsource / ipdest / ipfrag / udpsourceportIP / udpdestportIP / tcpsourceportIP / tcpdestportIP / ipttl / iptos / iptype).	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870	256
	ExtremeSwitching X690, X590, X465	512
ONEPolicy Permit/Deny Traffic Classification Rules Types — maximum number of unique Layer 2 permit/deny traffic classification rules (ethertype/port).	ExtremeSwitching X450-G2, X460-G2, X670-G2, X870	184
	ExtremeSwitching X620, X440-G2	184
	ExtremeSwitching X690, X590, X465	440
Policy-based routing (PBR) redundancy —maximum number of flow-redirects.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465	256 ^o

Table 5: Supported Limits for Edge License (continued)

Metric	Product	Limit
Policy-based routing (PBR) redundancy —maximum number of next hops per each flow-direct.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465	32 ⁰
Private VLANs —maximum number of subscribers. Assumes a minimum of one port per network and subscriber VLAN.	ExtremeSwitching X670-G2	63
	ExtremeSwitching X460-G2	53
	ExtremeSwitching X450-G2	51
	ExtremeSwitching X440-G2	47
	ExtremeSwitching X620	15
	ExtremeSwitching X870	127
	ExtremeSwitching X690 ExtremeSwitching X590, X465	71 31
Private VLANs —maximum number of private VLANs with an IP address on the network VLAN. Note: This limit is dependent on the maximum number of private VLANs in an L2-only environment if the configuration has tagged and translated ports.	ExtremeSwitching X670-G2, X460-G2, X870, X690, X590, X465	1,024
	ExtremeSwitching X450-G2	510
	ExtremeSwitching X440-G2 ExtremeSwitching X620	255 510
Private VLANs —maximum number of private VLANs in an L2-only environment.	ExtremeSwitching X670-G2, X460-G2, X870, X690, X590, X465	1,280
	ExtremeSwitching X450-G2	597
	ExtremeSwitching X440-G2, X620	255
PTP/1588v2 Clock Ports	ExtremeSwitching X460-G2, X670-G2	32 for boundary clock 1 for ordinary clock
	ExtremeSwitching X440-G2, X465, X620, X870, X690, X590	N/A

Table 5: Supported Limits for Edge License (continued)

Metric	Product	Limit
PTP/1588v2 Clock Instances	ExtremeSwitching X670-G2, X460-G2	2 combinations: <ul style="list-style-type: none"> • Transparent clock + ordinary clock • Transparent clock + boundary clock
	ExtremeSwitching X440-G2, X465, X620, X870, X690, X590	N/A
PTP/1588v2 Unicast Static Slaves	ExtremeSwitching X670-G2, X460-G2	40 entries per clock port
	ExtremeSwitching X440-G2, X465, X620, X870, X690, X590	N/A
PTP/1588v2 Unicast Static Masters	ExtremeSwitching X670-G2, X460-G2	10 entries per clock type
	ExtremeSwitching X440-G2, X465, X620, X870, X690, X590	N/A
Route policies —suggested maximum number of lines in a route policy file.	ExtremeSwitching X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465	10,000
RIP Learned Routes —maximum number of RIP routes supported without aggregation.	ExtremeSwitching X670-G2, X460-G2, X440-G2, X620, X870, X690, X590, X465	10,000
RIP interfaces on a single router —recommended maximum number of RIP routed interfaces on a switch.	ExtremeSwitching X670-G2, X460-G2, X450-G2, X870, X690, X590, X465	256
	ExtremeSwitching X440-G2, X620	128
RIPng learned routes —maximum number of RIPng routes.	ExtremeSwitching X670-G2, X460-G2, X450-G2, X870, X690, X590, X465	3,000
	ExtremeSwitching X440-G2, X620	N/A
Spanning Tree (maximum STPDs) —maximum number of Spanning Tree Domains on port mode EMISTP.	ExtremeSwitching X450-G2, X670-G2, X460-G2, X620, X870, X690, X590, X465	64
	ExtremeSwitching X440-G2	32

Table 5: Supported Limits for Edge License (continued)

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

Table 5: Supported Limits for Edge License (continued)

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

Table 5: Supported Limits for Edge License (continued)

Metric	Product	Limit
VLAN Port Interfaces (VPIF) —maximum number of VLAN port interfaces.	ExtremeSwitching X440-G2, X450-G2, X460-G2, X465, , X590, X670-G2, X620, X690, X870	131,585
VLANs (maximum active port-based) —maximum active ports per VLAN when 4,094 VLANs are configured with the default license.	ExtremeSwitching X670-G2, X870, X690, X590 , X465	32
	ExtremeSwitching X440-G2	28
	ExtremeSwitching X460-G2	26
	ExtremeSwitching X620	16
	ExtremeSwitching X450-G2	29
	ExtremeSwitching X460-G2	24
VLANs (maximum active protocol-sensitive filters) —number of simultaneously active protocol filters in the switch.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2. X870, X690, X590 , X465	16
VLAN translation —maximum number of translation VLANs. Assumes a minimum of one port per translation and member VLAN.	ExtremeSwitching X670-G2	63
	ExtremeSwitching X460-G2	53
	ExtremeSwitching X450-G2	51
	ExtremeSwitching X620	15
	ExtremeSwitching X440-G2	47
	ExtremeSwitching X870	127
	ExtremeSwitching X690	71
	ExtremeSwitching X590, X465	31
VLAN translation —maximum number of translation VLAN pairs with an IP address on the translation VLAN. Note: This limit is dependent on the maximum number of translation VLAN pairs in an L2-only environment if the configuration includes tagged and translated ports.	ExtremeSwitching X670-G2, X465, X870, X690, X590	1,024
	ExtremeSwitching X450-G2	512
	ExtremeSwitching X620	510
	ExtremeSwitching X440-G2	255
VLAN translation —maximum number of translation VLAN pairs in an L2-only environment.	ExtremeSwitching X450-G2, X670-G2, X460-G2, X870, X690, X590, X465	2,046
	ExtremeSwitching X440-G2, X620	255

Table 5: Supported Limits for Edge License (continued)

Metric	Product	Limit
XML requests —maximum number of XML requests per second. Note: Limits are dependent on load and type of XML request. These values are dynamic ACL data requests.	ExtremeSwitching X460-G2, X670-G2, X450-G2, X440-G2, X620, X870, X690, X590, X465	10 with 100 DACLs
XNV authentication —maximum number of VMs that can be processed (combination of local and network VMs).	ExtremeSwitching X460-G2, X670-G2, X870, X690, X590, X465	2,048
	ExtremeSwitching X450-G2, X440-G2, X620	1,024
XNV database entries —maximum number of VM database entries (combination of local and network VMs).	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465	16,000
XNV database entries —maximum number of VPP database entries (combination of local and network VPPs).	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465	2,048
XNV dynamic VLAN —Maximum number of dynamic VLANs created (from VPPs /local VMs).	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465	2,048
XNV local VPPs —maximum number of XNV local VPPs.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465	2,048 ingress 512 egress
XNV policies/dynamic ACLs —maximum number of policies/dynamic ACLs that can be configured per VPP.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465	8 ingress 4 egress
XNV network VPPs —maximum number of XNV network VPPs. ^P	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465	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 6: Supported Limits for Advanced Edge License

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

Table 6: Supported Limits for Advanced Edge License (continued)

Metric	Product	Limit
BGP auto-peering attached IPv6 hosts — maximum number of attached IPv6 hosts.	ExtremeSwitching X670-G2	254
	ExtremeSwitching X870, X690, X590, X465	8,000
BGP auto-peering ECMP — maximum number of equal cost multipath for auto-peering. Note: * Subject to the limitation imposed by the number of physical ports on a switch.	ExtremeSwitching X670-G2, ExtremeSwitching X690, X870, X590, X465	16*
BGP auto-peering maximum IPv4 prefixes with ECMP —Maximum number of IPv4 Network prefixes with ECMP.	ExtremeSwitching X670-G2, ExtremeSwitching X690, X870, X590, X465	64,000
BGP auto-peering maximum IPv6 prefixes with ECMP —Maximum number of IPv6 Network prefixes with ECMP.	ExtremeSwitching X670-G2, X690, X870, X590, X465	8,000
BGP auto-peering MLAG peers — maximum MLAG peers per AutoBGP node.	ExtremeSwitching X670-G2, X690, X870, X590, X465	1
BGP auto-peering VRFs — maximum number of VRFs.	ExtremeSwitching X670-G2, X690, X870, X590, X465	64
BGP auto-peering EVPN instances —maximum EVPN instances.	ExtremeSwitching X670-G2, X690, X870, X590, X465	1,024
EAPS domains —maximum number of EAPS domains. Note: An EAPS ring that is being spatially reused cannot have more than four configured EAPS domains.	ExtremeSwitching X870, X690, X590, X465	128
	ExtremeSwitching X670-G2, X450-G2, X460-G2	64
	ExtremeSwitching X440-G2, X620	32
EAPsv2 protected VLANs — maximum number of protected VLANs.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X440-G2, X620	500
	ExtremeSwitching X870, X690, X590, X465	2,000
ERPS domains —maximum number of ERPS domains without CFM configured.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465	32
ERPS domains —maximum number of ERPS domains with CFM configured.	ExtremeSwitching X450-G2, X670-G2, X620, X870, X690, X590, X465	16
	ExtremeSwitching X460-G2	32
ERPSv1 protected VLANs — maximum number of protected VLANs.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X870, X690, X590, X465	2,000
	ExtremeSwitching X620, X440-G2	1,000

Table 6: Supported Limits for Advanced Edge License (continued)

Metric	Product	Limit
ERPSv2 protected VLANs—maximum number of protected VLANs.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X870, X690, X590, X465	2,000
	ExtremeSwitching X620, X440-G2	500
ESRP groups—maximum number of ESRP groups	ExtremeSwitching X450-G2, X460-G2, X670-G2, X440-G2, X620, X870, X690, X590, X465	32
ESRP domains—maximum number of ESRP domains.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465	64
ESRP L2 VLANs—maximum number of ESRP VLANs without an IP address configured.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465	1,000
ESRP L3 VLANs—maximum number of ESRP VLANs with an IP address configured.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465	511
ESRP (maximum ping tracks)—maximum number of ping tracks per VLAN.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465	8
ESRP (IP route tracks)—maximum IP route tracks per VLAN.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465	8
ESRP (VLAN tracks)—maximum number of VLAN tracks per VLAN.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465	1
OSPFv2/v3 ECMP—maximum number of equal cost multipath OSPFv2 and OSPFv3.	ExtremeSwitching X460-G2, X670-G2, X450-G2, X870, X690, X590, X465	64
	ExtremeSwitching X620	4
	ExtremeSwitching X440-G2	N/A
OSPFv2 areas—as an ABR, how many OSPF areas are supported within the same switch.	ExtremeSwitching X460-G2, X670-G2, X870, X690, X590, X465	8
	ExtremeSwitching X450-G2, X440-G2, X620	4
OSPFv2 external routes—recommended maximum number of external routes contained in an OSPF LSDB.	ExtremeSwitching X870, X690, X590, X465	10,000
	ExtremeSwitching X670-G2, X460-G2	5,000
	ExtremeSwitching X450-G2, X440-G2, X620	2,400
OSPFv2 inter- or intra-area routes—recommended maximum number of inter- or intra-area routes contained in an OSPF LSDB with one ABR in OSPF domain.	ExtremeSwitching X870, X690, X590, X465	4,000
	ExtremeSwitching X670-G2, X460-G2	2,000
	ExtremeSwitching X450-G2, X440-G2, X620	1,000
OSPFv2 interfaces—recommended maximum number of OSPF interfaces on a switch (active interfaces only).	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465	4

Table 6: Supported Limits for Advanced Edge License (continued)

Metric	Product	Limit
OSPFv2 links—maximum number of links in the router LSA.	ExtremeSwitching X460-G2, X670-G2, X870, X690, X590, X465	400
	ExtremeSwitching X450-G2, X620, X440-G2	4
OSPFv2 neighbors—maximum number of supported OSPF adjacencies.	ExtremeSwitching X450-G2, X670-G2, X460-G2, X440-G2, X620, X870, X690, X590, X465	4
OSPFv2 routers in a single area—recommended maximum number of routers in a single OSPF area.	ExtremeSwitching X870, X690, X590, X465	100
	ExtremeSwitching X670-G2, X460-G2	50
	ExtremeSwitching X450-G2, X440-G2, X620	4
OSPFv2 virtual links—maximum number of supported OSPF virtual links.	ExtremeSwitching X460-G2, X670-G2, X870, X690, X590, X465	32
	ExtremeSwitching X450-G2, X440-G2, X620	4
OSPFv3 areas—as an ABR, the maximum number of supported OSPFv3 areas.	ExtremeSwitching X870, X690, X590, X465	100
	ExtremeSwitching X460-G2, X670-G2	16
	ExtremeSwitching X450-G2, X440-G2, X620	4
OSPFv3 external routes—recommended maximum number of external routes.	ExtremeSwitching X670-G2, X460-G2, X870, X690, X590, X465	10,000
	ExtremeSwitching X450-G2, X440-G2, X620	1,200
OSPFv3 inter- or intra-area routes—recommended maximum number of inter- or intra-area routes.	ExtremeSwitching X870, X690, X590, X465	4,000
	ExtremeSwitching X670-G2, X460-G2	3,000
	ExtremeSwitching X450-G2, X440-G2, X620	500
OSPFv3 interfaces—maximum number of OSPFv3 interfaces (active interfaces only).	ExtremeSwitching X670-G2, X460-G2, X450-G2, X870, X690, X440-G2, X620, X590, X465	4
OSPFv3 neighbors—maximum number of OSPFv3 neighbors.	ExtremeSwitching X450-G2, X670-G2, X460-G2, X870, X690, X440-G2, X620, X590, X465	4
OSPFv3 virtual links—maximum number of OSPFv3 virtual links supported.	ExtremeSwitching X670-G2, X460-G2, X870, X690, X590, X465	16
	ExtremeSwitching X450-G2, X440-G2, X620	4
PIM IPv4 (maximum interfaces)—maximum number of PIM active interfaces.	ExtremeSwitching X460-G2, X670-G2, X450-G2, X870, X440-G2, X620, X690, X590, X465	4
PIM IPv4 Limits—maximum number of multicast groups per dynamic rendezvous point.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465	180
PIM IPv4 Limits—maximum number of multicast groups per static rendezvous point.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465	3,000 (depends on policy file limits)

Table 6: Supported Limits for Advanced Edge License (continued)

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

Table 6: Supported Limits for Advanced Edge License (continued)

Metric	Product	Limit
VRRP (v2/v3-IPv4) (maximum instances) —maximum number of VRRP instances for a single switch, with Advanced Edge license or higher. Note: These limits are applicable for Fabric Routing configuration also. Note: Number of groups configured should not exceed the number of individual VRs supported (that is, in normal mode) for that platform type.	Normal Mode (as individual VRs): ExtremeSwitching X670-G2, X460-G2, X450-G2, X870, X690, X590, X465	511
	ExtremeSwitching X440-G2, X620	128
	Scaled Mode (with groups): ExtremeSwitching X670-G2, X460-G2, X450-G2, X870, X690, X590, X465	2,048
	ExtremeSwitching X440-G2, X620	128
VRRP (v3-IPv6) (maximum instances) —maximum number of VRRP instances for a single switch, with Advanced Edge license or higher. (VRRP-VRRPv3-IPv6) Note: These limits are applicable for Fabric Routing configuration also. Note: Number of groups configured should not exceed the number of individual VRs supported (that is, in normal mode) for that platform type.	Normal Mode (as individual VRs): ExtremeSwitching X670-G2, X460-G2, X450-G2, X870, X690, X590, X465	511
	ExtremeSwitching X440-G2, X620	128
	Scaled Mode (with groups): ExtremeSwitching X670-G2, X460-G2, X450-G2, X870, X690, X590, X465	2,048
	ExtremeSwitching X440-G2, X620	128
VRRP (v2/v3-IPv4/IPv6) (maximum VRID) —maximum number of unique VRID numbers per switch.	ExtremeSwitching X670-G2, X460-G2, X450-G2, X440-G2, X620, X870, X690, X590, X465 Note: With Advanced Edge license or higher.	255
VRRP (v2/v3-IPv4/IPv6) (maximum VRIDs per VLAN) —maximum number of VRIDs per VLAN.	ExtremeSwitching X670-G2, X460-G2, X450-G2, X440-G2, X620, X870, X690, X590, X465 Note: With Advanced Edge license or higher.	255
VRRP (v2/v3-IPv4/IPv6) (maximum ping tracks) —maximum number of ping tracks per VLAN.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465 Note: With Advanced Edge license or higher.	8
VRRP (maximum ping tracks) —maximum number of ping tracks per VRRP Instance under 128 VRRP instances, with Advanced Edge license or higher.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X620, X440-G2, X870, X690, X590, X465	8 (20 centisecond or 1 second hello interval)

Table 6: Supported Limits for Advanced Edge License (continued)

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

Supported Limits for Core License

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

Table 7: Supported Limits for Core License

Metric	Product	Limit
BGP (aggregates) —maximum number of BGP aggregates.	ExtremeSwitching X460-G2, X670-G2, X870, X690, X590, X465	256
	ExtremeSwitching X450-G2	204
BGP (networks) —maximum number of BGP networks.	ExtremeSwitching X460-G2, X670-G2, X870, X690, X590, X465	1,024
	ExtremeSwitching X450-G2	820
BGP (peers) —maximum number of BGP peers. Note: With default keepalive and hold timers.	ExtremeSwitching X460-G2, X670-G2, X870	128
	ExtremeSwitching X690, X590, X465	300
	ExtremeSwitching X450-G2	100
BGP (peer groups) —maximum number of BGP peer groups.	ExtremeSwitching X460-G2, X670-G2, X870, X690, X590, X465	64
	ExtremeSwitching X450-G2	50
BGP (policy entries) —maximum number of BGP policy entries per route policy.	ExtremeSwitching X460-G2, X670-G2, X870, X690, X590, X465	256
	ExtremeSwitching X450-G2	204
BGP (policy statements) —maximum number of BGP policy statements per route policy.	ExtremeSwitching X460-G2, X670-G2, X870, X690, X590, X465	1,024
	ExtremeSwitching X450-G2	820
BGP multicast address-family routes —maximum number of multicast address-family routes.	ExtremeSwitching X460-G2, X670-G2, X870, X690, X590, X465	25,000
	ExtremeSwitching X450-G2	20,000
BGP (unicast address-family routes) —maximum number of unicast address-family routes.	ExtremeSwitching X460-G2, X670-G2, X870, X690, X590, X465 (at default)	25,000
	ExtremeSwitching X870, X690, X590, X465 (with ALPM enabled)	100,000
	ExtremeSwitching X450-G2	20,000
BGP (non-unique routes) —maximum number of non-unique BGP routes.	ExtremeSwitching X460-G2, X670-G2, X870, X690, X590, X465	25,000
	ExtremeSwitching X450-G2	20,000
BGP ECMP —maximum number of equal cost paths per multipath for BGP and BGPv6.	ExtremeSwitching X460-G2, X670-G2, X870, X690, X590, X465	2, 4, 8, 16, 32, or 64
	ExtremeSwitching X450-G2	64

Table 7: Supported Limits for Core License (continued)

Metric	Product	Limit
BGPv6 (unicast address-family routes) —maximum number of unicast address family routes.	ExtremeSwitching X460-G2	6,000
	ExtremeSwitching X670-G2	8,000
	ExtremeSwitching X870, X690, X590, X465	10,000
	ExtremeSwitching X870, X690 (with ALPM enabled)	100,000
	ExtremeSwitching X450-G2	4,800
BGPv6 (non-unique routes) —maximum number of non-unique BGP routes.	ExtremeSwitching X460-G2	18,000
	ExtremeSwitching X670-G2, X870, X690, X590, X465	24,000
	ExtremeSwitching X450-G2	14,000
EVPN EVI instances —maximum number of EVI instances.	ExtremeSwitching X670-G2, X870, X690, X590, X465	1,024
EVPN LAGs —maximum number of LAGs.	ExtremeSwitching X670-G2, X870, X690, X590, X465	128
GRE Tunnels —maximum number of GRE tunnels.	ExtremeSwitching X460-G2, X670-G2, X450-G2, X870, X690, X590, X465	255
	ExtremeSwitching X620, X440G2	N/A
IS-IS adjacencies —maximum number of supported IS-IS adjacencies.	ExtremeSwitching X460-G2, X670-G2, X870, X690, X590, X465	128
	ExtremeSwitching X450-G2	N/A
IS-IS ECMP —maximum number of equal cost paths per multipath for IS-IS.	ExtremeSwitching X460-G2, X670-G2, X870, X690, X590, X465	2, 4, or 8
	ExtremeSwitching X450-G2	N/A
IS-IS interfaces —maximum number of interfaces that can support IS-IS.	ExtremeSwitching X460-G2, X670-G2, X770, X870, X690, X590, X465	255
	ExtremeSwitching X450-G2	N/A
IS-IS routers in an area —recommended maximum number of IS-IS routers in an area.	ExtremeSwitching X460-G2, X670-G2, X870, X690, X590, X465	256
	ExtremeSwitching X450-G2	N/A
IS-IS route origination —recommended maximum number of routes that can be originated by an IS-IS node.	ExtremeSwitching X460-G2, X670-G2, X870, X690, X590, X465	20,000
	ExtremeSwitching X450-G2	N/A
IS-IS IPv4 L1 routes in an L1 router —recommended maximum number of IS-IS Level 1 routes in a Level 1 IS-IS router.	ExtremeSwitching X460-G2, X670-G2, X870, X690, X590, X465	25,000
	ExtremeSwitching X450-G2	N/A
IS-IS IPv4 L2 routes —recommended maximum number of IS-IS Level 2 routes.	ExtremeSwitching X460-G2, X670-G2, X870, X690, X590, X465	25,000
	ExtremeSwitching X450-G2	N/A

Table 7: Supported Limits for Core License (continued)

Metric	Product	Limit
IS-IS IPv4 L1 routes in an L1/L2 router —recommended maximum number of IS-IS Level 1 routes in an L1/L2 IS-IS router.	ExtremeSwitching X460-G2, X670-G2, X870, X690, X590, X465	20,000
	ExtremeSwitching X450-G2	N/A
IS-IS IPv6 L1 routes in an L1 router —recommended maximum number of IS-IS Level 1 routes in a Level 1 IS-IS router.	ExtremeSwitching X460-G2, X670-G2, X870, X690, X590, X465	10,000
	ExtremeSwitching X450-G2	N/A
IS-IS IPv6 L2 routes —recommended maximum number of IS-IS Level 2 routes.	ExtremeSwitching X460-G2, X670-G2, X870, X690, X590, X465	10,000
	ExtremeSwitching X450-G2	N/A
IS-IS IPv6 L1 routes in an L1/L2 router —recommended maximum number of IS-IS Level 1 routes in a L1/L2 router.	ExtremeSwitching X460-G2, X670-G2, X870, X690, X590, X465	10,000
	ExtremeSwitching X450-G2	N/A
IS-IS IPv4/IPv6 L1 routes in an L1 router —recommended maximum number of IS-IS Level 1 routes in a Level 1 IS-IS router. The numbers documented are based on 50% IPv4 routes and 50% IPv6 routes.	ExtremeSwitching X460-G2, X670-G2, X870, X690, X590, X465	20,000
	ExtremeSwitching X450-G2	N/A
IS-IS IPv4/IPv6 L2 routes in an L2 router —recommended maximum number of IS-IS Level 2 routes in a Level 2 IS-IS router. The numbers documented are based on 50% IPv4 routes and 50% IPv6 routes.	ExtremeSwitching X460-G2, X670-G2, X870, X690, X590, X465	20,000
	ExtremeSwitching X450-G2	N/A
IS-IS IPv4/IPv6 L1 routes in an L1/L2 router —recommended maximum number of IS-IS Level 1 routes in a Level 1/Level2 IS-IS router. The numbers documented are based on 50% IPv4 routes and 50% IPv6 routes.	ExtremeSwitching X460-G2, X670-G2, X870, X690, X590, X465	20,000
	ExtremeSwitching X450-G2	N/A
MSDP active peers —maximum number of active MSDP peers.	ExtremeSwitching X450-G2, X670-G2, X460-G2, X870, X690, X590, X465	64
MSDP SA cache entries —maximum number of entries in SA cache.	ExtremeSwitching X670-G2, X690, X590, X465	14,000
	ExtremeSwitching X460-G2	10,000
	ExtremeSwitching X870	11,000
	ExtremeSwitching X450-G2	8,000
MSDP maximum mesh groups —maximum number of MSDP mesh groups.	ExtremeSwitching X450-G2, X670-G2, X460-G2, X870, X690, X590, X465	16
OSPFv2/v3 ECMP —maximum number of equal cost multipath OSPFv2 and OSPFv3.	ExtremeSwitching X460-G2, X670-G2, X450-G2, X870, X690, X590, X465	64

Table 7: Supported Limits for Core License (continued)

Metric	Product	Limit
OSPFv2 areas —as an ABR, how many OSPF areas are supported within the same switch.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X870, X690, X590, X465	8
OSPFv2 external routes —recommended maximum number of external routes contained in an OSPF LSDB.	ExtremeSwitching X870, X690, X590, X465	10,000
	ExtremeSwitching X670-G2, X460-G2	5,000
	ExtremeSwitching X450-G2	4,000
OSPFv2 inter- or intra-area routes —recommended maximum number of inter- or intra-area routes contained in an OSPF LSDB with one ABR in OSPF domain.	ExtremeSwitching X870, X690, X590, X465	4,000
	ExtremeSwitching X670-G2, X460-G2	2,000
	ExtremeSwitching X450-G2	1,600
OSPFv2 interfaces —recommended maximum number of OSPF interfaces on a switch (active interfaces only).	ExtremeSwitching X460-G2, X670-G2, X870, X690, X590, X465	400
	ExtremeSwitching X450-G2	320
OSPFv2 links —maximum number of links in the router LSA.	ExtremeSwitching X460-G2, X670-G2, X870, X690, X590, X465	400
	ExtremeSwitching X450-G2	320
OSPFv2 neighbors —maximum number of supported OSPF adjacencies.	ExtremeSwitching X670-G2, X460-G2, X870, X690, X590, X465	128
	ExtremeSwitching X450-G2	96
OSPFv2 routers in a single area —recommended maximum number of routers in a single OSPF area.	ExtremeSwitching X870, X690, X590, X465	100
	ExtremeSwitching X670-G2, X460-G2	50
	ExtremeSwitching X450-G2	40
OSPFv2 virtual links —maximum number of supported OSPF virtual links.	ExtremeSwitching X460-G2, X670-G2, X870, X690, X590, X465	32
	ExtremeSwitching X450-G2	25
OSPFv3 areas —as an ABR, the maximum number of supported OSPFv3 areas.	ExtremeSwitching X870, X690, X590, X465	100
	ExtremeSwitching X460-G2, X670-G2	16
	ExtremeSwitching X450-G2	12
OSPFv3 external routes —recommended maximum number of external routes.	ExtremeSwitching X670-G2, X460-G2, X870, X690, X590, X465	10,000
	ExtremeSwitching X450-G2	7,500
OSPFv3 inter- or intra-area routes —recommended maximum number of inter- or intra-area routes.	ExtremeSwitching X870, X690, X590, X465	4,000
	ExtremeSwitching X670-G2, X460-G2	3,000
	ExtremeSwitching X450-G2	500

Table 7: Supported Limits for Core License (continued)

Metric	Product	Limit
OSPFv3 interfaces —maximum number of OSPFv3 interfaces (active interfaces only).	ExtremeSwitching X670-G2, X460-G2, X870, X690, X590, X465	256
	ExtremeSwitching X450-G2	192
OSPFv3 neighbors —maximum number of OSPFv3 neighbors.	ExtremeSwitching X670-G2, X460-G2, X870, X690, X590, X465	64
	ExtremeSwitching X450-G2	48
OSPFv3 virtual links —maximum number of OSPFv3 virtual links supported.	ExtremeSwitching X670-G2, X460-G2, X870, X690, X590, X465	16
	ExtremeSwitching X450-G2	12
PIM IPv4 (maximum interfaces) —maximum number of PIM active interfaces.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X870, X690, X590, X465	255
PIM IPv4 Limits —maximum number of multicast groups per dynamic rendezvous point.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X870, X690, X590, X465	180
PIM IPv4 Limits —maximum number of multicast groups per static rendezvous point.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X870, X690, X590, X465	3,000 (depends on policy file limits)
PIM IPv4 Limits —maximum number of multicast sources per group.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X870, X690, X590, X465	5,000
PIM IPv4 Limits —maximum number of dynamic rendezvous points per multicast group.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X870, X690, X590, X465	145
PIM IPv4 Limits —static rendezvous points.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X870, X690, X590, X465	32
PIM IPv6 (maximum interfaces) —maximum number of PIM active interfaces.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X870, X690, X590, X465	255
PIM IPv6 Limits —maximum number of multicast sources per group.	ExtremeSwitching X460-G2, X670-G2, X870, X690, X590, X465	1,750
	ExtremeSwitching X450-G2,	1,500
PIM IPv6 Limits —maximum number of multicast groups per dynamic rendezvous point.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X870, X690, X590, X465	70
PIM IPv6 Limits —maximum number of multicast groups per static rendezvous point.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X870, X690, X590, X465	3,000 (depends on policy file limits)
PIM IPv6 Limits —maximum number of dynamic rendezvous points per multicast group.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X870, X690, X590, X465	64

Table 7: Supported Limits for Core License (continued)

Metric	Product	Limit
PIM IPv6 Limits —maximum number of secondary addresses per interface.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X870, X690, X590 , X465	70
PIM IPv6 Limits —static rendezvous points.	ExtremeSwitching X450-G2, X460-G2, X670-G2, X870, X690, X590 , X465	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 I2".

^h Based on "configure forwarding internal-tables more I3-and-ipmc".

^j The limit depends on setting configured with configure iproute reserved-entries.

^m The IPv4 and IPv6 multicast entries share the same hardware tables, so the effective number of IPv6 multicast entries depends on the number of IPv4 multicast entries present and vice versa.

ⁿ If IGMP and MLD are simultaneously configured on the switch, the number of effective subscribers supported are lessened accordingly.

^o The total of all PBR next hops on all flow redirects should not exceed 4,096.

^p The number of XNV authentications supported based on system ACL limitations.

^q Based on "configure forwarding internal-tables more routes".

^r Based on configure forwarding internal-tables more routes ipv6-mask-length 128.



Open Issues, Known Behaviors, and Resolved Issues

[Open Issues](#) on page 76

[Known Behaviors](#) on page 77

[Resolved Issues in ExtremeXOS 30.5](#) on page 78

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

Open Issues

The following are new open issues for supported features found in ExtremeXOS 30.5.

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

CR Number	Description
General	
xos0077732	After a reboot simultaneous running of the <code>show system</code> command on 8 Telnet/SSH sessions results in cli master crash.
ExtremeSwitching X435 Series Switches	
xos0076797	On ExtremeSwitching X435 series switches, changing autonegotiation from "on" to "off" with 10MB speed selected, the configuration change is not reflected on the peer switch.
xos0076886	On ExtremeSwitching X435 series switches, egress ACLs are not supported.
xos0077747	On ExtremeSwitching X435 series switches, HCLAG is not supported.
xos0077251	On ExtremeSwitching X435 series switches, core dump information is not preserved (as shown in <code>show debug system-dump</code>) after rebooting.
xos0077507	WDRR scheduling is not currently supported on ExtremeSwitching X435 series switches. Workaround: Use WRR for alternative scheduling.
xos0077774	On ExtremeSwitching X435 series switches, AVB on copper optics and 100M fiber optics using SFP ports is not supported.
ExtremeSwitching X460-G2 Series Switches	
xos0076994	In the presence of continuous L2 traffic, after a port comes up after a reboot, the "Flood Rate Exceeded" counter shown in the command <code>show port 21 rate-limit flood no-refresh</code> output does not update immediately.

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

CR Number	Description
ExtremeSwitching X440-G2 Series Switches	
xos0077772	On ExtremeSwitching X440-G2 series switches using 1G optics on 10G ports, ports do not come up after rebooting.
xos0077718	On ExtremeSwitching X440-G2 series switches with auto-discovery enabled, 10G ports 25/26 go down after reboot if ports 27/28 have optics attached or if stacking support is enabled.
Security	
xos0077164	Authenticated NetLogin user's entries are flushed when new member port is added into a LAG group.

Known Behaviors

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

Table 9: Known Issues, Platform-Specific, and Feature Change Requests (CRs)

CR Number	Description
ExtremeSwitching X435 Series Switches	
xos0076494	On ExtremeSwitching X435 24-port series switches, with fully populated ports, jumbo frames greater than 4,000 bytes are not forwarded with all 8 QoS queues.
xos0076664	ExtremeSwitching X435 series switches do not support WRED.
xos0076882	Starting with ExtremeXOS 30.5, on ExtremeSwitching X435 series switches, priority of the port is given preference even though the disconnect precedence is deny port in case of switch reboot and disable/enable in-line power except "reset inline-power".
xos0077008	On ExtremeSwitching X435 series switches, due to hardware limitations, the Sys LED does not blink in amber during failure conditions such as overheating.
xos0077043	Clear Flow is not supported on ExtremeSwitching X435 series switches.
xos0076410	On ExtremeSwitching X435 series switches, ATTN LED has no functionality defined.
xos0077324	For the ExtremeSwitching X435-24P-4S switches, you cannot view the fan speed in the output of the <code>show fan</code> command.
Policy	
xos0078266	Downgrading from ExtremeXOS 30.5, or later, to 30.4, or earlier, causes loss of policy profile configurations. Workaround: Before upgrading to 30.5, or later, save your 30.4, or earlier, policy configuration to ensure that you can downgrade back to 30.4, or earlier, if needed.
SummitStack	

Table 9: Known Issues, Platform-Specific, and Feature Change Requests (CRs) (continued)

CR Number	Description
xos0075762	If you are upgrading to ExtremeXOS 30.x from 22.x or earlier, you cannot use the <code>synchronize slot slotid</code> command initially. Workaround: Upgrade <i>both</i> the primary and secondary images on all switches in your stack to the same version of 30.x. You can then use <code>synchronize slot slotid</code> to upgrade the stack to any later version of ExtremeXOS as usual.
Security	
xos0077285	MLAG does not work when the peers are different switch platforms.

Resolved Issues in ExtremeXOS 30.5

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

CR Number	Description
General	
xos0061497	With L3VPN Dual homing, traffic is slow-path forwarded when the L3VPN peer is changed.
xos0075656	On SummitStacks, running the commands <code>disable/enable netlogin dot1x</code> globally takes a very long time to execute.
xos0076412	The command <code>show port port_list</code> output is aborted with an error when an optics is removed from an active port.
xos0076562	Router advertisements are processed on L2 VLANs resulting in routes being installed (if prefix is present) causing connectivity issues to those prefixes.
xos0076581	The command <code>show vlan tag</code> does not display VLAN information.
xos0076885	HTTPS sessions persist in "CLOSE_WAIT" state resulting in web access issues.
xos0077169	In MLAG topologies, FDB is removed randomly in an the MLAG peer, which causes connectivity issues.
xos0077318	ExtremeXOS fails to send XML notification to the XML server.
xos0077389	EDP process ends unexpectedly if the name of a VLAN configured with the command "CDP management-address vlan" is changed.

Table 10: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 30.5 (continued)

CR Number	Description
ExtremeSwitching X870 Series Switches	
xos0077094	Switch incorrectly defers sending tech-support data at the configured interval in some scenarios.
xos0077100	Switch fails to send tech-support data to collector after reboot.
ExtremeSwitching X620 Series Switches	
xos0076939	The command "show tech all logto file" returns a corrupted gzip file.
ExtremeSwitching X435 Series Switches	
xos0076409	On the ExtremeSwitching X435 series switches, copying an image to the inactive partition from the active partition is not supported.
xos0076719	For ExtremeSwitching X435-8P-2T-W switches for PoE uplink port combination either 0W + 30W or 30W + 0W, budgeted power is the guard band value (20W) instead of 0W.
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.
ExtremeSwitching X460-G2 Series Switches	
xos0076705	Cable diagnostics are not working on Summit X460G2-16mp switches.
ExtremeSwitching X440-G2 Series Switches	
xos0076423	DDMI information not appearing in relevant show commands.
BGP Auto-peering	
xos0076643	In multi-homed ECMP scenarios, missing routes occur for some of those ECMP destinations after rebooting switches. A multi-homed ECMP is when two switches have more than one link adjacency to one another. An ECMP destination is the adjacent switch's router ID. In this case, some links are not used.
xos0075897	With MLAG + BGP Auto-peering, incomplete ARP entry for host mobility routes occurs after disabling, and then enabling, an MLAG port.
ELRP	
xos0076321	ELRP takes 3-15 seconds to disable a loop detected on a port on a standby node.
xos0076376	ELRP packets are transmitted with checksum errors.
Extended Edge Switching	
xos0075419	On Extended Edge Switching, mirroring using policy/ACLs with a mirror destination on extended ports is not working.
xos0075180	On an Extended Edge Switching ring setup with MLAG, with scaled VRRP and PIM configuration and slow path traffic, such as ARP and IGMP joins, PIM process ends unexpectedly with signal 6.

Table 10: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 30.5 (continued)

CR Number	Description
xos0075756	With ExtremeSwitching X590 as the CB in a ring topology, running the <code>unconfigure switch</code> command with the <code>default.xsf</code> file present causes the ring to remain in a severed state.
xos0075869	After running <code>reboot all</code> from MLAG master, ring stays as linear cascade in MLAG master, and ring stays in severed state in MLAG peer with ring not established.
xos0076237	In a ring topology, adding a new slot between two slots, and then rebooting the adjacent slot, and then the new slot produces the error: <code>configVlanRemovePort:3110: KERNEL_EXVLAN_ERROR.</code>
OSPF	
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.
ONEPolicy	
xos0076317	Policy with match condition as "route-origin rip" and action to modify cost is not functioning in RIP.
Security	
xos0068278	IP security snooping is not working for clients in sub-VLAN. Violation is detected correctly, but the corresponding action is not triggered.
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".
xos0076337	Netlogin and Policy: LLDP packets are not sent or received, even after successful authentication, if the port is not part of any base/destination VLAN.
xos0076447	TLS transactions sometime encounter issues when clients send packets after a delay.
xos0076816	The NTP association takes a while to be updated when the interface goes down or comes back up.
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.
xos0074696	Using Extreme Management Center to configure NetLogin does not work reliably.
STP	
xos0077005	In an STP with MLAG configuration, ISC port cost should appear as "0" under the command <code>show stp domain_nameports</code> output.
SummitStack	
xos0076764	After failover, OSPFv3 routes are not removed from new master node.
xos0076956	IPFIX does not work on a stack when a master node does not support IPFIX.