



Switch Engine v33.3.1-Patch1-4 Release Notes

New Features, Improvements, and Known Issues

9039210-01 Rev AA
May 2025



Copyright © 2025 All rights reserved.

Legal Notice

Extreme Networks, Inc. reserves the right to make changes in specifications and other information contained in this document and its website without prior notice. The reader should in all cases consult representatives of Extreme Networks to determine whether any such changes have been made.

The hardware, firmware, software or any specifications described or referred to in this document are subject to change without notice.

Trademarks

Extreme Networks and the Extreme Networks logo are trademarks or registered trademarks of Extreme Networks, Inc. in the United States and/or other countries.

All other names (including any product names) mentioned in this document are the property of their respective owners and may be trademarks or registered trademarks of their respective companies/owners.

For additional information on Extreme Networks trademarks, see: <https://www.extremenetworks.com/about-extreme-networks/company/legal/trademarks>

Open Source Declarations

Some software files have been licensed under certain open source or third-party licenses.

End-user license agreements and open source declarations can be found at: <https://www.extremenetworks.com/support/policies/open-source-declaration/>



Table of Contents

Abstract.....	v
Preface.....	vi
Text Conventions.....	vi
Send Feedback.....	vii
Related Publications.....	viii
Switch Engine Publications.....	viii
Open Source Declarations.....	viii
Help and Support.....	viii
Subscribe to Product Announcements.....	ix
Overview.....	10
New Hardware Supported in Switch Engine 33.3.1.....	11
Security Information.....	12
Linux Kernel.....	12
OpenSSL Version.....	12
Upgrading Switch Engine.....	13
Newly Purchased Switches Require Software Upgrade.....	14
Default Switch Engine Settings.....	15
Switch Engine Image File Names.....	18
New and Corrected Features in Switch Engine 33.3.1.....	19
Addition of Framed-IP Address Attribute in RADIUS Accounting packets.....	19
Supported Platforms.....	19
Increased RADIUS Server Limit.....	19
Supported Platforms.....	19
Inlet Air Temperature Reporting.....	20
Supported Platforms.....	20
Modified CLI Commands.....	20
New EMS Messages.....	20
One Policy Access List Mode Enhancements for Double Wide Slices.....	20
Supported Platforms.....	20
Limitations.....	21
New CLI Command.....	21
Protocol Independent Multicast Multi-switch LAG support on User-created Virtual Routers.....	21
Limitations.....	21
Supported Platforms.....	21
Quality of Service Port Speed Calculation.....	21
Supported Platforms.....	21
Modified CLI Commands.....	22

RADIUS TLS Cipher Support.....	22
Supported Platforms.....	22
New CLI Command.....	22
Changing the Network Operating System.....	23
Making Your Initial Network Operating System Selection.....	23
Changing Your Network Operating System.....	24
ExtremeCloud IQ Agent Support.....	25
Extreme Hardware/Software Compatibility and Recommendation Matrices.....	28
Compatibility with Extreme Management Center.....	29
Supported MIBs.....	30
Tested Third-Party Products.....	31
Tested RADIUS Servers.....	31
Extreme Switch Security Assessment.....	32
DoS Attack Assessment.....	32
ICMP Attack Assessment.....	32
Port Scan Assessment.....	32
Limits.....	33
Limits Overview.....	33
Base License Limits.....	36
Premier License Limits.....	73
Notes for Limits Tables.....	82
Open Issues, Known Behaviors, and Resolved Issues.....	83
Open Issues.....	83
Known Behaviors.....	84
Resolved Issues in Switch Engine 33.3.1-Patch1-4.....	85
Resolved Issues in Switch Engine 33.3.1.....	85



Abstract

Switch Engine v33.3.1-Patch1-4 Release Notes by Extreme Networks, Inc., released in May 2025, provide comprehensive details on new features, software improvements, scaling limits, and resolved issues for Switch Engine version 33.3.1-Patch1-4. It also adds hardware support for 5120 Series switches. Key technical points include support for configuring an alternate MAC address, enhancements in Fabric Attach timeout settings, and the introduction of new CLI commands for various functionalities. It outlines hardware and software compatibility, default settings, and image file names, along with guidance for upgrading Switch Engine. Limits for various licenses and features, including Base and Premier licenses, are detailed. Additionally, the release notes highlight known behaviors and limitations in the system architecture, and list numerous resolved issues across different patches, including improvements in security profile operation. This release serves as a comprehensive resource for technical readers seeking detailed insights into the functionality, compatibility, and performance improvements of the specified software version.



Preface

Read the following topics to learn about:

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

Text Conventions

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

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

Table 1: Notes and warnings






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

Table 2: Text

Convention	Description
screen displays	This typeface indicates command syntax, or represents information as it is displayed on the screen.
The words <i>enter</i> and <i>type</i>	When you see the word <i>enter</i> 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 <i>type</i> .
Key names	Key names are written in boldface, for example Ctrl or Esc . If you must press two or more keys simultaneously, the key names are linked with a plus sign (+). Example: Press Ctrl+Alt+Del
<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.
NEW!	New information. In a PDF, this is searchable text.

Table 3: Command syntax

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

Send Feedback

The User Enablement team at Extreme Networks has made every effort to ensure that this document is accurate, complete, and easy to use. We strive to improve our

documentation to help you in your work, so we want to hear from you. We welcome all feedback, but we especially want to know about:

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

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

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

Related Publications

Switch Engine Publications

- *Switch Engine v33.3.1 Command References*
- *Switch Engine v33.3.1 Licensing Guide*
- *Switch Engine and ExtremeXOS v33.3.x EMS Messages Catalog*
- *Switch Engine v33.3.1 User Guide*
- *Switch Engine v33.3.1 Release Notes*
- *ExtremeXOS Quick Guide*
- *Extreme Hardware/Software Compatibility and Recommendation Matrices*
- *Extreme Optics Compatibility*
- *Switch Configuration with Chalet for ExtremeXOS 21.x and Later*
- *ACL Solutions Guide*
- *ExtremeXOS and Switch Engine SNMP Traps Reference*

Open Source Declarations

Some software files have been licensed under certain open source licenses. More information is available at: www.extremenetworks.com/support/policies/software-licensing/.

Help and Support

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

Extreme Portal

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

The Hub

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

Call GTAC

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

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

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

Subscribe to Product Announcements

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

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

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



Overview

These release notes document Switch Engine 33.3.1, which adds features and resolves software deficiencies.



New Hardware Supported in Switch Engine 33.3.1

The following new hardware is supported in Switch Engine 33.3.1:

Table 4: 5120 Series Switches

ExtremeSwitching 5120-24X-4Y	24 1G/10G SFP+ ports, 4 1G/10G/25G SFP28 ports, MACsec capable, 4 unpopulated fan slots, 2 unpopulated modular PSU slots
ExtremeSwitching 5120-24XT-4Y	24 1G/10GBase-T Non-PoE ports, 4 1G/10G/25G SFP28 ports, MACsec capable, 4 unpopulated fan slots, 2 unpopulated modular PSU slots
ExtremeSwitching 5120-44X-4Y-2C	44 1G/10G SFP+ ports, 4 1G/10G/25G SFP28 ports, 2 100G QSFP28, MACsec capable, 6 unpopulated fan slots, 2 unpopulated modular PSU slots



Security Information

[Linux Kernel](#) on page 12

[OpenSSL Version](#) on page 12

The following section covers important security information for Switch Engine 33.3.1.

Linux Kernel

Switch Engine 33.3.1 uses Linux Kernel 5.10.

OpenSSL Version

Switch Engine [33.3.1](#) uses FIPS openssl-3.0.10.



Upgrading Switch Engine

For instructions about upgrading Switch Engine software, see *Software Upgrade and Boot Options* in [Switch Engine v33.3.1 User Guide](#).

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



Note

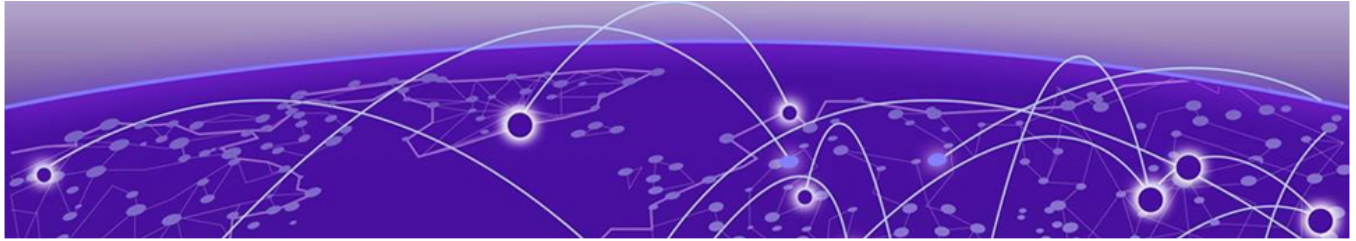
New ExtremeSwitching 5420 and 5520 PoE switches use a new version of the PoE microcontroller that prevents the switch from downgrading to older EXOS versions and prevents operating system switchover to unsupported VOSS versions.

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

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

The ExtremeSwitching 5420 and 5520 PoE switches that use a new version of the PoE microcontroller can be identified for by checking the PoE firmware revision (5.0 or later) by entering the `show inline-power stats` command (line four):

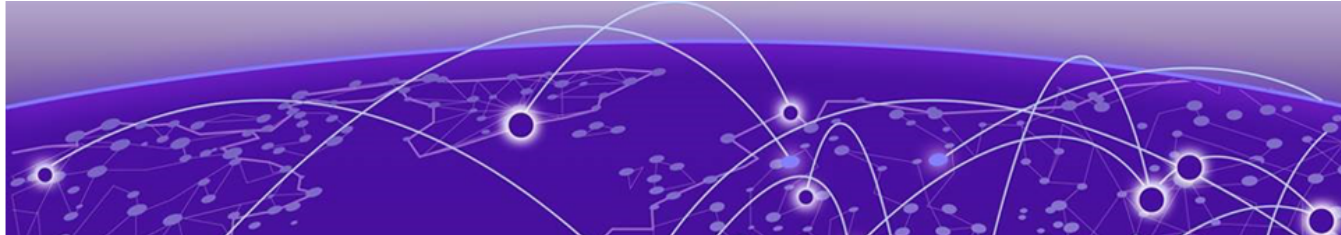
```
# show inline-power stats
Inline-Power Slot Statistics
Firmware status           : Operational
Firmware revision         : 5.0.0b4
Total ports powered       : 3
Total ports awaiting power : 20
Total ports faulted       : 0
Total ports disabled      : 1
```



Newly Purchased Switches Require Software Upgrade

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

For information about upgrading the Switch Engine software, see the *Switch Engine Upgrade Process* topic in the *Software Upgrade and Boot Options* chapter of the [Switch Engine v33.3.1 User Guide](#).



Default Switch Engine Settings

The following table shows the default settings for Switch Engine starting with version 31.6, and shows any changes that have been made to these settings and in what version these changes were made.

Table 5: Default Switch Engine Settings

Feature	31.6 and later	32.4 and later
1G behavior in 10G ports (5420 and 5520 series switches)	Autoneg OFF for port when 1G optic is inserted in a 10G port	
Account Lockout	After 3 consecutive login failures, account is locked for 5 minutes. ^a	
Auto-Discovery for Universal Hardware	Enabled.	
AVB	Disabled.	
BFD Strict Session Protection	Disabled.	
BGP	Disabled.	
Bluetooth	Enabled.	
BOOTP Relay	Disabled.	
CDP	Enabled.	
Configuration auto save	Disabled.	
Clear-flow	Disabled.	
Diagnostics	Admin level privileges required to show diagnostics. ^a	
DHCP	Disabled.	
DNS Cache Resolver and Analytics	Disabled.	
IPFIX	Disabled.	
IP NAT	Disabled.	
EAPS	Disabled.	
EDP	Enabled.	
ELRP	Disabled.	

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

Table 5: Default Switch Engine Settings (continued)

Feature	31.6 and later	32.4 and later
ESRP	Disabled.	
Extended Edge Switching (VPEX)	Disabled.	
ExtremeCloud IQ	Enabled	
FEC	Enabled on Native 25Gb ports.	
Identity Management	Disabled.	
IGMP	Enabled, set to IGMPv2 compatibility mode.	
IGMP Snooping	Enabled.	
Image Integrity Check	Disabled.	
IP Route Compression	Enabled.	
ISIS	Disabled.	
LLDP	Enabled.	
Log	Admin level privileges required to show log. ^a	
Logging memory buffer	Generate an event when the logging memory buffer exceeds 90% of capacity. ^a	
MAC Security	Disabled.	
MLD	Disabled.	
MLD Snooping	Disabled.	
MPLS	Disabled.	
MSRP	Disabled.	
MSTP	Enabled.	
NetLogin	All types of authentication are disabled.	
NTP	Disabled.	
ONEPolicy	Disabled.	
Policy rule model	Hierarchical (Unless upgrading from 30.5 with a saved configuration set to access list.)	
OpenFlow	Disabled.	
OSPF	Disabled.	
OVSDB	Disabled.	
Passwords	Plain text password entry not allowed. ^a	
PIM	Disabled.	

Table 5: Default Switch Engine Settings (continued)

Feature	31.6 and later	32.4 and later
PIM Snooping	Disabled.	
PoE	Enabled.	
Fast PoE	Disabled.	
Perpetual PoE	Disabled.	
RADIUS	Disabled for both switch management and network login.	
RIP	Disabled.	
RMON	Disabled. However, even in the disabled state, the switch responds to RMON queries and sets for alarms and events.	
sFlow	Disabled.	
SNMP server	Disabled. ^a	
SSH	Disabled.	
Stacking-support	Enabled.	Disabled for ExtremeSwitching 5120, Extreme 7520, and 7720 only.
Stacking auto-discovery	Enabled.	
STP	Enabled.	
Syslog	Disabled.	
TACACS	Disabled.	
Telnet	Enabled. ^a	
VPEX IP Multicast Replication	BPE	
VPLS	All newly created VPLS instances are enabled.	
Watchdog	Enabled.	
Web HTTP server	Enabled. ^a	
Web HTTPS server	Disabled. ^a	



Switch Engine Image File Names

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

Table 6: Switch Engine Image Types (Prefixes)

Switches	Image File Type (Prefix)
4120, 5120	rzg2 Example: rzg2-33.3.1.x.xos
4220, 5320, 5420, 5520	summit_arm Example: summit_arm-33.1.1.x.xos
5720, 7520, 7720	onie Example: onie-33.1.1.6.x86_64.xos



New and Corrected Features in Switch Engine 33.3.1

[Addition of Framed-IP Address Attribute in RADIUS Accounting packets](#) on page 19

[Increased RADIUS Server Limit](#) on page 19

[Inlet Air Temperature Reporting](#) on page 20

[One Policy Access List Mode Enhancements for Double Wide Slices](#) on page 20

[Protocol Independent Multicast Multi-switch LAG support on User-created Virtual Routers](#) on page 21

[Quality of Service Port Speed Calculation](#) on page 21

[RADIUS TLS Cipher Support](#) on page 22

This section lists the new and corrected features supported in the 33.3.1 software:

Addition of Framed-IP Address Attribute in RADIUS Accounting packets

Version 33.3.1 adds support for adding RADIUS Framed IP address attributes to RADIUS accounting packets.

Supported Platforms

All platforms.

Increased RADIUS Server Limit

Version 33.3.1 increases the server limit to 32 RADIUS Authentication (AUTH), Accounting (ACCT), and Dynamic Authorization (DYN_AUTH) servers. The connections include both UDP and TLS protocols.

Supported Platforms

All platforms.

Inlet Air Temperature Reporting

Version 33.3.1 adds software support for measuring and reporting the inlet air temperature of a switch using an Extreme-supplied USB dongle temperature sensor. When the sensor is inserted, the temperature will be reported as follows:

```
# show temperature
Field Replaceable Units
Normal    Max
-----
Switch    : 5520-24W          68.38    Normal    0
10-100    110
Switch    : Inlet Air       21.50
```

For switch models that support two USB ports, the sensor works in either port, but only one sensor will work at a time if two are plugged in. If two are installed and one is removed, the second one must be re-seated for the kernel/operating system to detect and use it.

Supported Platforms

4120, 5420, 5520, 5720, and 7520-48XT models.

Modified CLI Commands

The following commands are modified to show USB temperature sensor information:

```
show temperature
```

New EMS Messages

The following new EMS messages are added to report when the sensor is installed and removed:

```
#show log chronological match temperature
<Info:HAL.Sys.USBTmpSnsrInst1> USB temperature sensor (FW-ESTSv1.0 HW-v1.3T) installed.
Use 'show temperature' to display the inlet air temperature.
<Info:HAL.Sys.USBTmpSnsrRem> USB temperature sensor removed.
```

One Policy Access List Mode Enhancements for Double Wide Slices

Version 33.3.1 adds support for specifying double-wide slices for IPv4 rules. This enhancement includes both statically configured and role-based downloadable ACLs.

Supported Platforms

5420, 5320, 4220, 5520, 5720, 7520, 7720.

Limitations

This feature has the following limitations:

- Policy must be disabled to change the ingress slice mode.
- The precedence of policy slices can't be changed.
- The setting only applies to access-list mode.

New CLI Command

The following command is added in support of this feature:

```
configure policy slices ingress [ipv4-single-only | ipv4-double-only]
```

Protocol Independent Multicast Multi-switch LAG support on User-created Virtual Routers

Version 33.3.1 adds Protocol Independent Multicast (PIM) Multi-switch LAG (MLAG) support on User-created Virtual Routers (VR). This enhancement adds support for the following features:

- IPv4 PIM-Sparse Mode (SM) on MLAG on user-created VRs.
- IPv4 PIM-Dense Mode (DM) on MLAG on user-created VRs.

The VR name must be same on both MLAG peers for PIM MLAG to work.

Limitations

This following features are not supported with this enhancement:

- PIM snooping on MLAG on user-created VRs.
- IPv6 PIM features on MLAG on user-created VRs.
- PIM RP cannot be one of the MLAG peers.
- RP reachability of one MLAG peer cannot be through the other MLAG peers.

Supported Platforms

All platforms that support PIM MLAG.

Quality of Service Port Speed Calculation

Version 33.3.1 adds an enhancement to the Quality of Service (QoS) profile that lets you use the "minbw" and "maxbw" settings to calculate the bandwidth based on the actual port speed and not on the maximum port speed.

Supported Platforms

All platforms.

Modified CLI Commands

The `configure qosprofile` command adds the **minbw_actual** *minbw_actnum* and **maxbw_actual** *maxbw_actnum* options.

The `show configuration`, `show port` information, and `show qosprofile` commands add **minbw_actual** and **maxbw_actual** information.

RADIUS TLS Cipher Support

Version 33.3.1 adds support for RADIUS TLS cipher configuration. Additionally, for ECDHA ciphers, the curves list is fixed as secp256r1, secp384r1, and secp521r1. The following ciphers are supported:

Default mode -

- TLS_RSA_WITH_AES_128_CBC_SHA
- TLS_RSA_WITH_AES_128_CBC_SHA256
- TLS_RSA_WITH_AES_256_CBC_SHA256
- TLS_DHE_RSA_WITH_AES_256_CBC_SHA256
- TLS_DHE_RSA_WITH_AES_128_CBC_SHA256
- TLS_ECDHE_RSA_WITH_AES_128_CBC_SHA256
- TLS_ECDHE_RSA_WITH_AES_256_CBC_SHA384

FIPS mode -

- TLS_ECDHE_RSA_WITH_AES_128_CBC_SHA256
- TLS_ECDHE_RSA_WITH_AES_256_CBC_SHA384

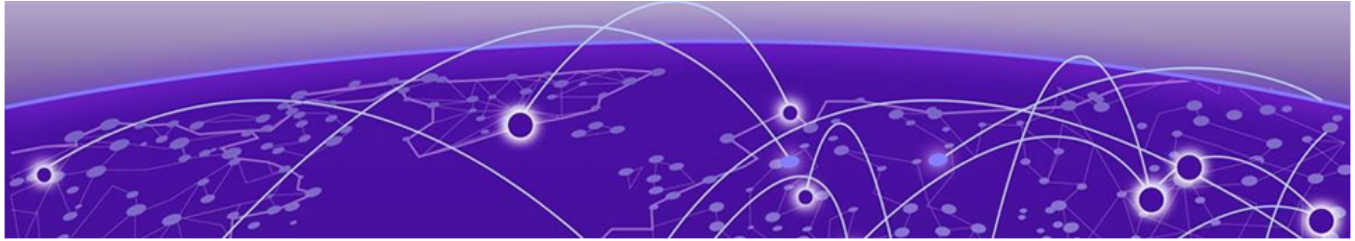
Supported Platforms

All platforms.

New CLI Command

The following new CLI command supports this feature:

```
configure radius tls cipher [[ cipher | fips_cipher | all ] on |  
[ cipher | fips_cipher ] off ]
```



Changing the Network Operating System

Universal Hardware switches can run two different operating systems: Switch Engine (default) or Fabric Engine.

Making Your Initial Network Operating System Selection

You can make your initial selection of the operating system using:

- **ExtremeCloud IQ** (see [ExtremeCloud IQ Agent Support](#) on page 25)—You can select your network operating system when purchasing your switch, which associates the switch serial number with your desired network operating system, which then causes the desired network operating system to be loaded during ExtremeCloud onboarding. For more information about using ExtremeCloud IQ, go to <https://www.extremenetworks.com/support/documentation/extremecloud-iq/>.
- **Extreme Management Center**— see documentation for version 22.3 or later
- **Manually during boot-up:**
 - **Bootloader**—When you see the message Starting Default Bootloader ...Press and hold the <spacebar> to enter the bootrom, press and hold the **space bar** until the boot menu is displayed (you have 30 seconds):

```
*** 5320-48T-8XE Boot Menu ( 3.4.2.8 ) ***

EXOS: Default
EXOS: Primary 32.1.1.6
EXOS: Secondary 32.1.1.6
EXOS: Primary 32.1.1.6 with default configuration
EXOS: Secondary 32.1.1.6 with default configuration
EXOS: Rescue
Change the switch OS to VOSS
Run Manufacturing Diagnostics
Update bootloader
Reboot system
```

Use the **up** and **down** arrow keys to select Change the switch OS to VOSS, and then press **Enter**.



Note

The 5720, 7520, and 7720 Series use the **GRUB** menu. There is no need to press and hold the **space bar**. Use the **up** and **down** arrow keys to navigate the menu.

- **Safe defaults mode start-up menu**—When the question Would you like to change the switch OS to VOSS? [y/N/q] is displayed:
 - For Switch Engine, type N.
 - For Fabric Engine, type y.

Continue to log onto the switch. For more information about logging onto the switch, see the [Switch Engine v33.3.1 User Guide](#).

Changing Your Network Operating System

You can change your network operating system selection at any time.



Caution

Changing your network operating systems deletes all configuration files, debug information, logs, events, and statistics information of the previous network operating system.



Note

If you anticipate ever changing the operating system to Fabric Engine, and you want to statically assign IP addresses on the DHCP server, then it is recommended to assign them based on the DHCP client ID. For more information about this issue, see the *Using a BOOTP or DHCP Server* topic in the [Switch Engine v33.3.1 User Guide](#).

- **ExtremeCloud IQ**—See <https://www.extremenetworks.com/support/documentation/extremecloud-iq/>
- **Extreme Management Center**—See [Extreme Management Center User Guide](#)
- **CLI Command**—run the download `[url url {vr vrname} | image [active | inactive] [[hostname | ipaddress] filename [{vr} vrname] {block-size block_size}] {partition} {install {reboot}}` command specifying a VOSS image.



Note

Do *not* use the active, inactive, and partition options. They are not applicable for Fabric Engine.



ExtremeCloud IQ Agent Support

Switch Engine supports ExtremeCloud IQ. For network administrators looking for unified management of access points, switches, & routers, ExtremeCloud IQ is a cloud-driven network management application that:

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



Important

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

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

Version 33.3.1 was tested with ExtremeCloud IQ version 25R2.

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

Table 7: Supported Platforms

Switch Series	Switch Models
4120*	4120-24MW-4Y 4120-48MW-4Y
4220*	4220-8X 4220-12P-4X 4220-12T-4X 4220-24P-4X 4220-24T-4X 4220-48P-4X 4220-48T-4X 4220-4MW-8P-4X 4220-4MW-20P-4X 4220-8MW-40P-4X

Table 7: Supported Platforms (continued)

Switch Series	Switch Models
5120	5120-24X-4Y 5120-24XT-4Y 5120-44X-4Y-2C
5320	5320-48T-8XE 5320-48P-8XE 5320-24T-8XE 5320-24P-8XE 5320-16P-4XE 5320-16P-4XE-DC 5320-24T-4X-XT 5320-24T-24S-4XE-XT
5420	5420F-8W-16P-4XE 5420F-24P-4XE 5420F-24S-4XE 5420F-24T-4XE 5420F-16MW-32P-4XE 5420F-16W-32P-4XE 5420F-48P-4XE 5420F-48P-4XL 5420F-48T-4XE 5420M-24T-4YE 5420M-24W-4YE 5420M-16MW-32P-4YE 5420M-48T-4YE 5420M-48W-4YE
5520	5520-24T 5520-24W 5520-48T 5520-48W 5520-12MW-36W 5520-24X 5520-48SE 5520-24T-ACDC-BASE 5520-48T-ACDC-BASE 5520-24X-ACDC-BASE 5520-48SE-ACDC-BASE
5720	5720-24MW 5720-24MXW 5720-48MW 5720-48MXW

Table 7: Supported Platforms (continued)

Switch Series	Switch Models
7520	7520-48Y-8C 7520-48XT-6C 7520-48YE-8CE
7720	7720-32C

* - See *4000 Series User Guide* for this version of Switch Engine for detailed information on these Cloud-managed devices.



Extreme Hardware/Software Compatibility and Recommendation Matrices

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

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

To find the recommended Switch Engine releases for Universal Hardware platforms, see *ExtremeXOS and Switch Engine Release Recommendations*.

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



Compatibility with Extreme Management Center

Switch Engine 33.3.1 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.

Switch Engine 33.3.1 is compatible with ExtremeCloud IQ - Site Engine version 22.3 or later. Older versions (including Extreme Management Center) will not recognize devices running Switch Engine.

Version 33.3.1 was tested with ExtremeCloud IQ Site Engine versions 25.2.12 and 25.5.10.

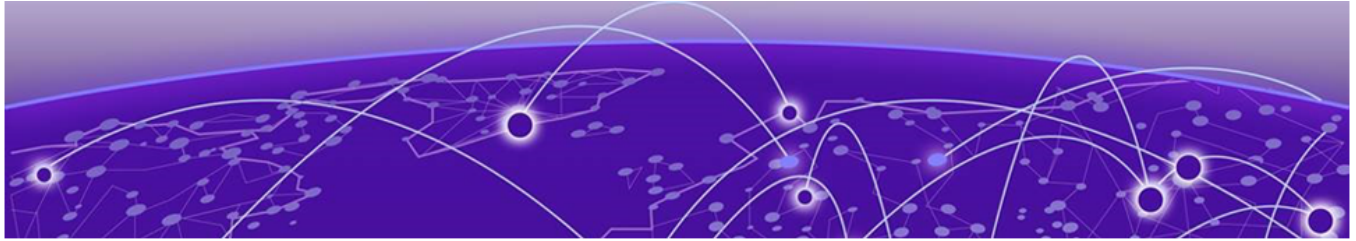


Supported MIBs

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

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

For detailed information on which MIBs and SNMP traps are supported, see the *Extreme Networks Proprietary MIBs* and *MIB Support Details* sections in the [Switch Engine v33.3.1 User Guide](#).



Tested Third-Party Products

The following third-party products have been tested for Switch Engine 33.2.1.

Tested RADIUS Servers

The following RADIUS servers are fully tested:

- Microsoft—Internet Authentication Server
- Meetinghouse
- FreeRADIUS



Extreme Switch Security Assessment

DoS Attack Assessment

Tools used to assess DoS attack vulnerability:

- Network Mapper (NMAP)

ICMP Attack Assessment

Tools used to assess ICMP attack vulnerability:

- SSPing
- Twinge
- Nuke
- WinFreeze

Port Scan Assessment

Tools used to assess port scan assessment:

- Nessus



Limits

[Limits Overview](#) on page 33

[Base License Limits](#) on page 36

[Premier License Limits](#) on page 73

[Notes for Limits Tables](#) on page 82

This chapter summarizes the supported limits in Switch Engine 33.3.1.

Limits Overview

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

- [Base License Limits](#) on page 36
- [Premier License Limits](#) on page 73

The Universal family of switches includes two license levels: Base and Premier.

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

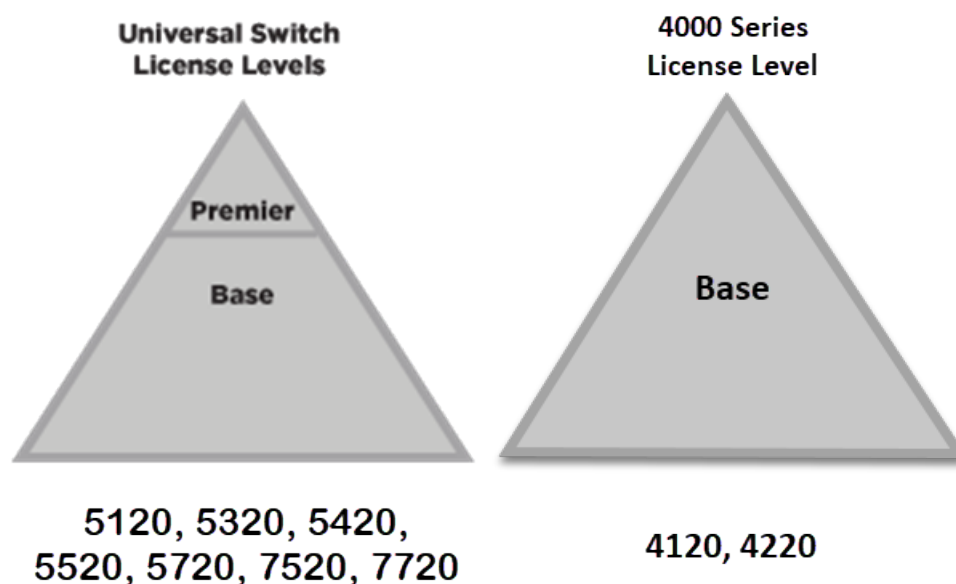


Figure 1: License Levels for Universal Switches

Extreme Platform ONE Networking includes three license levels: Standard, Advanced, and Premium. A Standard license is required to manage devices from ExtremeCloud IQ.

**Extreme Platform ONE Networking
License Levels**

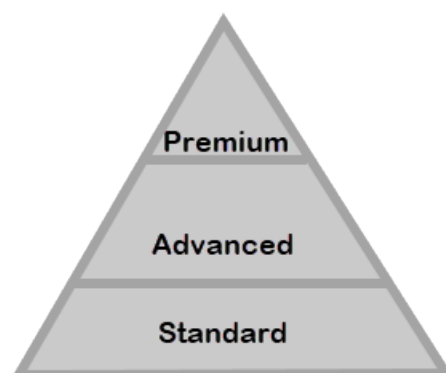


Figure 2: Extreme Platform ONE Networking License Levels

Each license level is purchased based on four tiers, depending on device type:

- A - 4000 series, 5120, 5320
- B - 5420
- C - 5520
- D - 5720, 7520, 7720

Universal devices with a verified Extreme Platform ONE Networking license will perform the following actions:

- 5000 and 7000 series - activate Premier Universal license features
- 4000 series - activate full command line interface

Extreme Platform ONE Networking also provides operating system product service, management, and insights.

For more information about licenses, see [Switch Engine v33.3.1 Licensing Guide](#).

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

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

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

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

Base License Limits

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

Table 8: Supported Limits for the Base License

Metric	Product	Limit
AAA (local) —maximum number of admin and local user accounts.	All platforms	16
Access lists (meters) —maximum number of meters.	4120, 5120	512 ingress 128 egress
	4220	2048 ingress 256 egress
	5320, 5420	6,144 ingress 512 egress
	7520, 7720	6,000 ingress 2,000 egress
	5520	2,048 ingress 512 egress
	5720-MW	6,144 ingress 3,072 egress
	5720-MXW	6,144 ingress 6,144 egress
Access lists (policies) —suggested maximum number of lines in a single policy file.	All platforms	300,000

Table 8: Supported Limits for the Base License (continued)

Metric	Product	Limit
Access lists (policies)— maximum number of rules in a single policy file. ^a	4220, 5320-48T/P, 7520, 7720	8,192 ingress 1,024 egress
	5320-24T/P, 5320-16P	8,192 ingress 512 egress
	4120, 5120	1,024 ingress 256 egress
	5420M	18,000 (rules double- wide (160- bit)) ingress 36,000 (rules single-wide (80-bit, default)) ingress 1,024 egress
	5420F	8,000 (rules double- wide (160- bit)) ingress 16,000 (rules single-wide (80-bit, default)) ingress 1,024 egress
	5520	9,216 ingress 1,024 egress
	5720-MW	18,432 (80- bit) ingress 8,192 egress
Access lists (policies)— maximum number of rules in a single policy file in first stage (VFP).	5720-MXW	36,864 (80- bit), 18,432 (160-bit) ingress 12,288 egress
	5520, 5720	2,048 ingress only
	5320-48T/P, 5420, 7520, 7720	1,024 ingress only
	4220, 5320-16P, 5320-24T-4X-XT	512 ingress only
	4120, 5120	256 ingress

Table 8: Supported Limits for the Base License (continued)

Metric	Product	Limit
Access lists (slices) —number of ACL slices.	5720, 7520, 7720	12 ingress 4 egress
	5320-48T/P, 5420, 5520	18 ingress 4 egress
	4120, 4220, 5120, 5320-24T/P, 5320-16P	8 ingress 4 egress
Access lists (slices) —number of ACL slices in first stage (VFP).	All platforms	4 ingress only
ACL Per Port Meters —number of meters supported per port.	All platforms	16
ACL port ranges.	All platforms	32
Meters Packets-Per-Second Capable.	All platforms	N/A
AVB (audio video bridging) —maximum number of active streams.	ExtremeSwitching 5320 (except extended temperature models), 5420	1,024
	ExtremeSwitching 5520, 5720, 7520	4,096
BFD sessions (Software Mode) —maximum number of BFD sessions.	ExtremeSwitching 5320, 5420, 5520, 5720, 7520, 7720 (default timers—1 sec).	512
	5120 (default timers—1 sec).	90
BFD IPv4 sessions (Hardware Assisted) —maximum number of IPv4 BFD sessions.	7520, 7720	900 (PTP not enabled) 425 (PTP enabled) 256 (with 3 ms transmit interval)
BFD IPv6 sessions (Hardware Assisted) —maximum number of IPv6 BFD sessions.	7520, 7720	425 (PTP not enabled)
BGP (multicast address-family routes) —maximum number of multicast address-family routes.	5520, 5720-MXW, 7520, 7720	25,000
	5420, 5720-MW	20,000
	5320 (except 5320-24T-4X-XT)	8,000
	5320-24T-4X-XT. 5320- 24T-24S-4XE-XT	2,000
	5120	64

Table 8: Supported Limits for the Base License (continued)

Metric	Product	Limit
BGP (non-unique routes) —maximum number of nonunique BGP routes.	5420, 5520, 5720MXW, 7520, 7720	75,000
	5720-MW	60,000
	5320 48T/P , 5320- 24T-24S-4XE-XT	36,000
	5320 16P, 24T/P	24,000
	5320-24T-4X-XT	2,700
	5120	192
BGP (peers) —maximum number of BGP peers.	All platforms except 4120 and 4220.	2
BGP (unicast address-family routes) —maximum number of unicast address-family routes.	5420, 5520, 5720-MXW, 7520, 7720 (at default)	25,000
	5720-MW	20,000
	5320 48T/P , 5320- 24T-24S-4XE-XT	12,000
	5320 16P, 24T/P	8,000
	5320-24T-4X-XT	900
	5120	64
	5720-MW (with ALPM enabled)	163,000
	5720-MXW (with ALPM enabled)	288,000
	5520 (with ALPM enabled)	80,000
BGP auto-peering —maximum number of auto-peering nodes and VTEPs.	All platforms except 4120 and 4220.	64
BGP auto-peering attached IPv4 hosts —maximum number of attached IPv4 hosts.	All platforms except 4120 and 4220.	64,000
BGP auto-peering attached IPv6 hosts —maximum number of attached IPv6 hosts.	All platforms except 4120 and 4220.	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 5720, Extreme 7520, 7720	16*
	ExtremeSwitching 5320, 5420, 5520	4*

Table 8: Supported Limits for the Base License (continued)

Metric	Product	Limit
BGP auto-peering maximum IPv4 prefixes with ECMP —Maximum number of IPv4 Network prefixes with ECMP.	5120, 5320, 5420, 5520, 5720	16,000
	Extreme 7520, 7720	64,000
BGP auto-peering maximum IPv6 prefixes with ECMP —Maximum number of IPv6 Network prefixes with ECMP.	5120, 5320, 5420, 5520, 5720	254
	Extreme 7520, 7720	64,000
BGP auto-peering MLAG peers —maximum MLAG peers per AutoBGP node.	All platforms except 4120 and 4220.	1
BGP auto-peering VRFs —maximum number of VRFs.	All platforms except 4120 and 4220.	64
BGP auto-peering EVPN instances —maximum EVPN instances.	All platforms except 4120 and 4220.	1,024
BGPv6 (unicast address family routes) —maximum number of unicast address family routes.	5320 48T/P, 5320- 24T-24S-4XE-XT , 5420, 5520, 5720-MW	6,000
	5720-MW (with ALPM enabled)	107,000
	5720-MXW, 7520, 7720	10,000
	5120	64
	5720-MXW (with ALPM enabled)	213,000
	5520 (with ALPM enabled)	40,000
	5320 16P, 24T/P	4,000
	5320-24T-4X-XT	400
BGPv6 (non-unique routes) — maximum number of nonunique BGP routes.	5420, 5520, 5720-MW	18,000
	5720-MXW, 7520, 7720	30,000
	5320	14,000
	5320 16P, 24T/P	12,000
	5320-24T-4X-XT	1,200
	5120	64
BOOTP/DHCP relay —maximum number of BOOTP or DHCP servers per virtual router.	All platforms	8
BOOTP/DHCP relay —maximum number of BOOTP or DHCP servers per VLAN.	All platforms	8
BOOTP/DHCP relay —maximum number of DHCPv4/v6 relay agents	All platforms	4,000

Table 8: Supported Limits for the Base License (continued)

Metric	Product	Limit
Connectivity fault management (CFM) —maximum number of CFM domains.	All platforms	8
CFM —maximum number of CFM associations.	All platforms	256
CFM —maximum number of CFM up end points.	All platforms	32
CFM —maximum number of CFM down end points.	All platforms	32
CFM —maximum number of CFM remote end points per up/down end point.	All platforms	2,000
CFM —maximum number of dot1ag ports.	All platforms	128
CFM —maximum number of CFM segments.	All platforms	1,000
CFM —maximum number of MIPs.	All platforms	256
CLEAR-Flow —total number of rules supported. The ACL rules plus CLEAR-Flow rules must be less than the total number of supported ACLs.	4120, 4220, ExtremeSwitching 5120, 5320, 5420, 5720, Extreme 7520, 7720	8,192
	ExtremeSwitching 5520	9,215
Data Center Bridging eXchange (DCBX) protocol Type Length Value (TLVs) —maximum number of DCBX application TLVs.	All platforms	8
DHCPv6 Prefix Delegation Snooping —Maximum number of DHCPv6 prefix delegation snooped entries.	All platforms	256 (with underlying protocol RIPng) 128 (with underlying protocol OSPFv3) 1,024 (with static routes)
DHCP snooping entries —maximum number of DHCP snooping entries.	4120, 4220, 5120, 5320, 5420, 5520, 5720	2,050
	Extreme 7520, 7720	2,048

Table 8: Supported Limits for the Base License (continued)

Metric	Product	Limit
Dynamic ACLs —maximum number of ACLs processed per second. Note: Limits are load-dependent.	All platforms 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.	ExtremeSwitching 5720 5120, 5320-24T/P, 5320-16P 5320-48T/P, 5420, 5520	128 32 64
EAPSV1 protected VLANs —maximum number of protected VLANs.	5120, 5320-24T/P, 5320-16P 5320-48T/P, 5420, 5520, 5720, 7520, 7720	1,000 2,000
EAPSV2 protected VLANs —maximum number of protected VLANs.	5120, 5320, 5420, 5520 5720, 7520, 7720	1,000 2,000
ELSM (vlan-ports) —maximum number of VLAN ports.	4120, 4220, 5120, 5320-24T/P, 5320-16P 5320-48T/P, 5420, 5520, 5720, 7520, 7720	4,000 5,000
ERPS domains —maximum number of ERPS domains with or without CFM configured.	All platforms.	32
ERPSV1 protected VLANs —maximum number of protected VLANs.	5120, 5320-24T/P, 5320-16P ExtremeSwitching 5320-48T/P, 5420, 5520, 5720, Extreme 7520, 7720	1,000 2,000
ERPSV2 protected VLANs —maximum number of protected VLANs.	5120, 5320-24T/P, 5320-16P ExtremeSwitching 5320-48T/P, 5420, 5520, 5720, Extreme 7520, 7720	500 2,000
ESRP groups —maximum number of ESRP groups	All platforms except 4120 and 4220	32
ESRP domains —maximum number of ESRP domains.	ExtremeSwitching 5320, 5420, 5520, 5720, 7520, 7720. 5120	64 32
ESRP L2 VLANs —maximum number of ESRP VLANs without an IP address configured.	ExtremeSwitching 5320, 5420, 5520, 5720, 7520, 7720 5120	1,000 120

Table 8: Supported Limits for the Base License (continued)

Metric	Product	Limit
ESRP L3 VLANs —maximum number of ESRP VLANs with an IP address configured.	ExtremeSwitching 5320-48T/P, 5420, 5520, 5720, Extreme 7520, 7720	511
	ExtremeSwitching 5320-24T/P, 5320-16P	509
	5120	120
ESRP (maximum ping tracks) —maximum number of ping tracks per VLAN.	All platforms except 4120 and 4220.	8
ESRP (IP route tracks) —maximum IP route tracks per VLAN.	All platforms except 4120 and 4220.	8
ESRP (VLAN tracks) —maximum number of VLAN tracks per VLAN.	All platforms except 4120 and 4220.	1
Extended Edge Switching maximum BPEs —maximum number of attached bridge port extenders (BPEs).	ExtremeSwitching 5520, 7520-48Y	48
	ExtremeSwitching 5420	20
Extended Edge Switching maximum cascade ports —maximum number of upstream ports on bridge port extenders (BPEs).	ExtremeSwitching 5420, 5520, 7520-48Y	2 on V400-24 and V300 models 4 on V400-48 models
Extended Edge Switching maximum tiers —maximum number of cascade levels (tiers) of bridge port extenders (BPEs).	ExtremeSwitching 5420, 5520, 7520-48Y	4 (except for V300-8P-2T-W, which support 1 tier)
Extended Edge Switching maximum ring BPEs —maximum number of bridge port extenders (BPEs) in a ring topology.	ExtremeSwitching 5420, 5520, 7520-48Y	8
Extended Edge Switching maximum VLANs —maximum number of VLANs - Includes all VLANs	ExtremeSwitching 5520, 7520-48Y	4,094
	ExtremeSwitching 5420	1,024

Table 8: Supported Limits for the Base License (continued)

Metric	Product	Limit
Extended Edge Switching VLAN+ port memberships —maximum number of VLAN+ (extended) port memberships.	ExtremeSwitching 5520, 7520-48Y	12,000 in hash mode (default) 131,000 in port-group mode
	ExtremeSwitching 5420	8,750 in hash mode (default) 131,617 in port-group mode
Forwarding rate —maximum L3 software forwarding rate.	4220	9,274 pps
	4120	12,624 pps
	5120	9,000 pps
	ExtremeSwitching 5320-48P	19,142 pps
	ExtremeSwitching 5420F-48T	21,585 pps
	ExtremeSwitching 5520-24T	18,838 pps
	ExtremeSwitching 5720-MW	27,000 pps
	ExtremeSwitching 5720-MXW	31,000 pps
FDB (unicast blackhole entries) —maximum number of unicast blackhole FDB entries.	Extreme 7520, 7720	34,813 pps
	4120, 5120	16,384
	4220, ExtremeSwitching 5320	32,000
	ExtremeSwitching 5420M	65,536
	ExtremeSwitching 5420F	32,768 ^f
	ExtremeSwitching 5520	114,688 ^f
	ExtremeSwitching 5720-MW	163,840 ^f
FDB (multicast blackhole entries) —maximum number of multicast blackhole FDB entries.	ExtremeSwitching 5720-MXW, Extreme 7520, 7720	294,912 ^f
	ExtremeSwitching 5520, 5720-MW, Extreme 7520, 7720	4,096
	4120, 4220, 5120, 5320, 5420	1,024
	ExtremeSwitching 5720-MXW	16,000

Table 8: Supported Limits for the Base License (continued)

Metric	Product	Limit
FDB (maximum L2 entries) —maximum number of MAC addresses.	4120, 5120	16,384
	4220, ExtremeSwitching 5320	32,000
	ExtremeSwitching 5420M	65,536
	ExtremeSwitching 5420F	32,768 ⁹
	ExtremeSwitching 5520	114,688 ⁹
	ExtremeSwitching 5720-MW	163,840 ⁹
	ExtremeSwitching 5720-MXW, Extreme 7520, 7720	294,912 ⁹
FDB (maximum L2 entries) —maximum number of multicast FDB entries.	ExtremeSwitching 5520, Extreme 7520, 7720	4,096
	4120, 4220, 5120, 5320, 5420	1,024
	ExtremeSwitching 5720	16,000
GRE Tunnels —maximum number of GRE tunnels.	All platforms, except 4120, 4220, 5120	255
Identity management —maximum number of Blacklist entries.	All platforms except 4120 and 4220.	512
Identity management —maximum number of Whitelist entries.	All platforms except 4120 and 4220.	512
Identity management —maximum number of roles that can be created.	All platforms except 4120 and 4220.	64
Identity management —maximum role hierarchy depth allowed.	All platforms except 4120 and 4220.	5
Identity management —maximum number of attribute value pairs in a role match criteria.	All platforms except 4120 and 4220.	16
Identity management —maximum number of child roles for a role.	All platforms except 4120 and 4220.	8
Identity management —maximum number of policies/dynamic ACLs that can be configured per role.	All platforms except 4120 and 4220.	8
Identity management —maximum number of LDAP servers that can be configured.	All platforms except 4120 and 4220.	8

Table 8: Supported Limits for the Base License (continued)

Metric	Product	Limit
Identity management —maximum number of Kerberos servers that can be configured.	All platforms except 4120 and 4220.	20
Identity management —maximum database memory size.	All platforms except 4120 and 4220.	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.	All platforms except 4120 and 4220.	100
Identity management —recommended number of ACL entries per identity. Note: Number of ACLs per identity, based on system ACL limitation.	All platforms except 4120 and 4220.	20
Identity management —maximum number of dynamic ACL entries configured as an individual dynamic rule, or as an ACL entry in a policy file.	All platforms except 4120 and 4220.	500
IGMP snooping per VLAN filters —maximum number of VLANs supported in per-VLAN IGMP snooping mode.	ExtremeSwitching 5320 (except 5320-24T-4X-XT), 5420, 5520, 5720, Extreme 7520, 7720	1,500
	4220, ExtremeSwitching 5320-24T-4X-XT	500
	4120	48
	5120	100
IGMPv1/v2 SSM-map entries —maximum number of IGMPv1/v2 SSM mapping entries.	5320, 5420, 5520, 5720, 7520, 7720	6
	5120	60
IGMPv1/v2 SSM-map entries —maximum number of sources per group in IGMPv1/v2 SSM mapping entries.	All platforms except 4120 and 4220.	50

Table 8: Supported Limits for the Base License (continued)

Metric	Product	Limit
IGMPv2 subscriber —maximum number of IGMPv2 subscribers per port. ⁿ	5320 (except 5320-24T-4X-XT), 5420, 7520, 7720, 5720, 5520	4,000
	4220, 5320-24T-4X-XT	1,000
	4120, 5120	250
IGMPv2 subscriber —maximum number of IGMPv2 subscribers per switch. ⁿ	ExtremeSwitching 5320 (except 5320-24T-4X-XT), 5420, 5520	20,000
	ExtremeSwitching 5720-MW, Extreme 7520, 7720	45,000
	ExtremeSwitching 5720-MXW	54,000
	4220, 5320-24T-4X-XT	1,000
	4120, 5120	256
IGMPv3 maximum source per group —maximum number of source addresses per group.	All platforms	250
IGMPv3 subscriber —maximum number of IGMPv3 subscribers per port. ⁿ	5320 (except 5320-24T-4X-XT), 5420, 5520, 5720, 7520, 7720	4,000
	4220, 5320-24T-4X-XT	1,000
	4120, 5120	250
IGMPv3 subscriber —maximum number of IGMPv3 subscribers per switch. ⁿ	ExtremeSwitching 5320 (except 5320-24T-4X-XT), 5420, 5520	20,000
	ExtremeSwitching 5720-MW, Extreme 7520, 7720	45,000
	ExtremeSwitching 5720-MXW	54,000
	4220, 5320-24T-4X-XT	1,000
	4120, 5120	256
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).	4120	400
	4220, 5120	4,000
	ExtremeSwitching 5420F models	12,000
	ExtremeSwitching 5420M models	24,000
	5320, 5520	74,750 ^h
	ExtremeSwitching 5720-MW	100,000
	Extreme 7520, 7720	184,318 (up to)
	ExtremeSwitching 5720-MXW	221,000

Table 8: Supported Limits for the Base License (continued)

Metric	Product	Limit
IPv4 ARP entries in hardware with minimum LPM routes—maximum recommended number of IPv4 ARP entries in hardware, with minimum LPM routes present. Assumes number of IP route reserved entries is 100 or less.	4120, 5120	397
	4220	4,000
	ExtremeSwitching 5320	12,000
	ExtremeSwitching 5420M models	24,000
	ExtremeSwitching 5420F models	12,000
	ExtremeSwitching 5520	60,000 ^h
	ExtremeSwitching 5720-MW	80,000 ^h
	Extreme 7520, 7720	146,000 ^h
	ExtremeSwitching 5720-MXW	172,000 ^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.”	4120, 5120	384
	4220	3,000
	ExtremeSwitching 5320	10,000
	ExtremeSwitching 5420M models	21,000
	ExtremeSwitching 5420F models	10,000
	ExtremeSwitching 5520	49,000 ^h
	ExtremeSwitching 5720-MW	70,000 ^h
	Extreme 7520, 7720	125,000 ^h
	ExtremeSwitching 5720-MXW	156,000 ^h
IP flow information export (IPFIX)—number of simultaneous flows.	ExtremeSwitching 5420	4,000 (IPv4 and IPv6 flows)
	ExtremeSwitching 5520	32,000 (IPv4 flows) 18,000 (IPv6 flows)
	ExtremeSwitching 5720	257,000 (IPv4 flows) 112,000 (IPv6 flows)

Table 8: Supported Limits for the Base 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.	4120, 5120	450
	4220	4,000
	ExtremeSwitching 5320	20,000
	ExtremeSwitching 5320-24T/P, 5320-16P	24,000
	ExtremeSwitching 5420M	36,000
	ExtremeSwitching 5420F	24,000 ^h
	ExtremeSwitching 5520	102,000 ^h
	ExtremeSwitching 5720-MW	139,000 ^h
	Extreme 7520, 7720	241,000 (up to)
	ExtremeSwitching 5720-MXW (with ALPM enabled)	245,000 ^h
IPv4 routes —maximum number of IPv4 routes in software (combination of unicast and multicast routes), including static and from all routing protocols.	ExtremeSwitching 5520	81,000
	4120, 4220, 5120, 5320, 5420	25,000
	ExtremeSwitching 5720-MW	163,000
	ExtremeSwitching 5720-MXW	288,000
	Extreme 7520, 7720	350,000
IPv4 routes (LPM entries in hardware) — number of IPv4 routes in hardware.	4120, 5120	64
	4220	992
	ExtremeSwitching 5320-16T/P, 5320-24T/P	8,000
	ExtremeSwitching 5320-48T/P, 5420	12,000
	ExtremeSwitching 5520	81,000 ^q
	ExtremeSwitching 5720-MW	163,000 ^q
	Extreme 7520, 7720	262,000 up to 350,000 ^q
	ExtremeSwitching 5720-MXW	288,000 ^q
IPv6 6in4 tunnel —maximum number of IPv6 6in4 tunnels.	All platforms except 4120, 4220, and 5120	255
IPv6 6to4 tunnel —maximum number of IPv6 6to4 tunnels.	All platforms except 4120, 4220, and 5120	1 (per virtual router)
IPv6 addresses on an interface —maximum number of IPv6 addresses on an interface.	All platforms	255
IPv6 addresses on a switch —maximum number of IPv6 addresses on a switch.	All platforms	2,048

Table 8: Supported Limits for the Base License (continued)

Metric	Product	Limit
IPv6 host entries in hardware —maximum number of IPv6 neighbor entries in hardware.	4120, 5120	200
	4220	2,000
	ExtremeSwitching 5320	6,000
	ExtremeSwitching 5420M models	12,000
	ExtremeSwitching 5420F models	6,000
	ExtremeSwitching 5520	18,000 ^s
	ExtremeSwitching 5720-MW	24,000 ^s
	Extreme 7520, 7720	57,000 ^h
	ExtremeSwitching 5720-MXW	78,000 ^s
IPv6 routes in software —maximum number of IPv6 routes in software, including static routes and routes from all routing protocols.	ExtremeSwitching 5520	18,000 ^q
	4120, 4220, 5120, 5320, 5420	25,000
	ExtremeSwitching 5720-MW	70,000 ^q
	Extreme 7520, 7720	196,000 ^q
	ExtremeSwitching 5720-MXW	213,000 ^q
IPv6 routes (LPM entries in hardware) —maximum number of IPv6 routes in hardware.	4120, 5120	64
	4220	512
	ExtremeSwitching 5520	40,000 ^q
	ExtremeSwitching 5420	6,000
	ExtremeSwitching 5720-MW	107,000 ^q
	Extreme 7520, 7720	131,000 up to 196,000 ^q
	ExtremeSwitching 5720-MXW	213,000 ^q
IPv6 routes with a mask greater than 64 bits in hardware —maximum number of such IPv6 LPM routes in hardware.	ExtremeSwitching 5320, 5420	256
	4120, 5120	64
	ExtremeSwitching 5520	8,192 ^r
	Extreme 7520, 7720	32,000 ^r
	ExtremeSwitching 5720-MW	16,000 ^r
	ExtremeSwitching 5720-MXW	24,000 ^r
IPv6 route sharing in hardware —route mask lengths for which ECMP is supported in hardware.	4120, 4220, 5120, 5320, 5420	0–64, >64 single path only
	ExtremeSwitching 5520, 5720, Extreme 7520, 7720	0–128 ^r

Table 8: Supported Limits for the Base License (continued)

Metric	Product	Limit
IP router interfaces —maximum number of VLANs performing IPv4 and/or IPv6 routing. Excludes sub-VLANs.	4120, 5120	126
	5320-48T/P, 5420	1,533
	4220, 5320-24T/P, 5320-16P	509
	5520, 5720, 7520, 7720	2,048
IP multicast static routes —maximum number of permanent multicast IP routes.	All platforms	1,024
IP unicast static routes —maximum number of permanent IP unicast routes.	All platforms	1,024
IP route sharing (maximum gateways) —Configurable maximum number of gateways used by equal cost multipath OSPF, BGP, IS-IS, static routes, or L2VPNs. Static routes, OSPF, and BGP are limited to 64 ECMP gateways per destination, while IS-IS is limited to 8. L2VPNs are limited to 16 LSPs per pseudowire on platforms that support 32 gateways, and 64 LSPs per pseudowire on platforms that support 64 gateways.	4120, 4220, 5120, 5320, 5420, 5520 ExtremeSwitching 5720, Extreme 7520, 7720	2, 4, or 8 2, 4, 8, 16, 32, or 64

Table 8: Supported Limits for the Base 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.	4120, 5120	62 (if maximum gateways is 2, 4, or 8)
	4220, ExtremeSwitching 5320 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.	124 (if maximum gateways is 2) 124 (if maximum gateways is 4) 60 (if maximum gateways is 8)
	ExtremeSwitching 5420 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.	510 (if maximum gateways is 2) 254 (if maximum gateway is 4) 126 (if maximum gateways is 8)
	ExtremeSwitching 5520 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.	2,046 (if maximum gateways is 2) 1,022 (if maximum gateway is 4) 510 (if maximum gateways is 8)
	ExtremeSwitching 5720 if maximum gateways is 2 if maximum gateways is 4 if maximum gateways is 8 if maximum gateways is 16 (default) if maximum gateways is 32 if maximum gateways is 64	2,046 2,046 2,046 1,022 510 254

Table 8: Supported Limits for the Base License (continued)

Metric	Product	Limit
	<p>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.</p>	
	<p>Extreme 7520, 7720</p> <p>if maximum gateways is 2</p> <p>if maximum gateways is 4</p> <p>if maximum gateways is 8</p> <p>if maximum gateways is 16 (default)</p> <p>if maximum gateways is 32</p> <p>if maximum gateways is 64</p> <p>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.</p>	<p>4,094</p> <p>4,094</p> <p>2,046</p> <p>1,022</p> <p>510</p> <p>254</p>
IP multinetting (secondary IP addresses) —maximum number of secondary IP addresses per VLAN.	All platforms	255
Jumbo frames —maximum size supported for jumbo frames, including the CRC.	All platforms	9,216
<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 "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. <p>4120 and 4220 do not support PIM snooping.</p>	4120, 5120	192
	4220, ExtremeSwitching 5320	32,000
	ExtremeSwitching 5420	64,000
	ExtremeSwitching 5520	32,768
	ExtremeSwitching 5720-MW	49,152
	Extreme 7520, 7720	73,000
	ExtremeSwitching 5720-MXW	81,920

Table 8: Supported Limits for the Base License (continued)

Metric	Product	Limit
Layer-3 IPv4 Multicast —maximum number of <S,G,V> entries installed in the hardware (IP multicast compression enabled). Note: <ul style="list-style-type: none"> Limit value is the same for MVR senders, PIM Snooping entries, PIM SSM cache, IGMP senders, PIM cache. Assumes source-group-vlan mode as look up key. Layer 3 IPMC cache limit in mixed mode also has the same value. 	4120, 5120	192
	4220	2,000
	ExtremeSwitching 5320 (except 5320-24T-4X-XT)	8,000
	ExtremeSwitching 5420M	12,000
	ExtremeSwitching 5420F	6,000
	ExtremeSwitching 5520	43,000
	ExtremeSwitching 5720-MW	61,000
	Extreme 7520, 7720	104,000
	ExtremeSwitching 5720-MXW	110,000
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. Assumes source-group-vlan mode as lookup key. 4120 and 4220 do not support PIM snooping, but MLD cache is supported in the hardware.	4120, 5120	100
	4220	1,000
	ExtremeSwitching 5320 (except 5320-24T-4X-XT)	4,000
	ExtremeSwitching 5420M	6,000
	ExtremeSwitching 5420F	3,000
	ExtremeSwitching 5520	21,500
	ExtremeSwitching 5720-MW	30,500
	Extreme 7520, 7720	52,000
	ExtremeSwitching 5720-MXW	55,000
	ExtremeSwitching 5320-24T-4X-XT	1,000

Table 8: Supported Limits for the Base License (continued)

Metric	Product	Limit
Load sharing —maximum number of load sharing groups. Note: The actual number of load-sharing groups that can be configured is limited by the number of physical ports present in the switch or SummitStack.	All platforms	128
Load sharing —maximum number of ports per load-sharing group.	For standalone and stacked: 4120, 4220, 5120, 5320, 5420	8
	For standalone: ExtremeSwitching 5520, 5720, Extreme 7520, 7720	32
	For stacked: ExtremeSwitching 5520, 5720, Extreme 7520, 7720	64
Logged messages —maximum number of messages logged locally on the system.	All platforms	20,000
MAC-based security —maximum number of MAC-based security policies.	All platforms	1,024
MAC Locking —Maximum number of MAC locking stations that can be learned on a port.	All platforms	64 (static MAC locking stations) 600 (first arrival MAC locking stations)
Meters —maximum number of meters supported.	All platforms	2,048
Maximum mirroring instances.	All platforms except 4120	4 total, 2 egress
	4120	6 defined, max 4 enabled (max 1 egress)
Mirroring (filters) —maximum number of mirroring filters. Note: This is the number of filters across all the active mirroring instances.	All platforms	128

Table 8: Supported Limits for the Base License (continued)

Metric	Product	Limit
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.	All platforms	128
Mirroring, one-to-many (monitor port) —maximum number of one-to-many monitor ports.	All platforms	16
MLAG ports —maximum number of MLAG ports allowed. Note: The number of MLAG ports that can be configured is limited by the number of physical ports present in the system.	5120, 5320 5720 5420, 5520 7520, 7720	55 63 59 61
MLAG peers —maximum number of MLAG peers allowed.	All platforms	2
Multicast listener discovery (MLD) snooping per-VLAN filters —maximum number of VLANs supported in per-VLAN MLD snooping mode.	5320 (except 5320-24T-4X-XT), 5420, 5520, 5720, 7520, 7720 4220, 5320-24T-4X-XT 4120, 5120	1,500 250 32
Multicast listener discovery (MLD)v1 subscribers —maximum number of MLDv1 subscribers per port. ⁿ	5320 (except 5320-24T-4X-XT), 5420, 5520, 5720, 7520, 7720 4220, 5320-24T-4X-XT 4120, 5120	4,000 1,000 100
Multicast listener discovery (MLD)v1 subscribers —maximum number of MLDv1 subscribers per switch. ⁿ	ExtremeSwitching 5320 (except 5320-24T-4X-XT), 5420, 5520 ExtremeSwitching 5720-MW Extreme 7520, 7720 ExtremeSwitching 5720-MXW 4220, 5320-24T-4X-XT 4120, 5120	10,000 30,000 45,000 54,000 1,000 100

Table 8: Supported Limits for the Base License (continued)

Metric	Product	Limit
Multicast listener discovery (MLD)v2 subscribers —maximum number of MLDv2 subscribers per port. ⁿ	ExtremeSwitching 5320 (except 5320-24T-4X-XT), 5420, 5520, 5720, 7520, 7720	4,000
	4220, ExtremeSwitching 5320-24T-4X-XT	1,000
	4120, 5120	100
Multicast listener discovery (MLD)v2 subscribers —maximum number of MLDv2 subscribers per switch. ⁿ	4120, 4220, ExtremeSwitching 5320 (except 5320-24T-4X-XT), 5420, 5520	10,000
	ExtremeSwitching 5720-MW	30,000
	7520, 7720	45,000
	ExtremeSwitching 5720-MXW	54,000
	4220, ExtremeSwitching 5320-24T-4X-XT	1,000
Multicast listener discovery (MLD)v2 maximum source per group —maximum number of source addresses per group.	4120, 5120	100
	All platforms except 5120	200
Multicast listener discovery (MLD) SSM-map entries —maximum number of MLD SSM mapping entries.	5320, 5420, 5520, 5720, 7520, 7720	100
		500
Multicast listener discovery (MLD) SSM-MAP entries —maximum number of sources per group in MLD SSM mapping entries.	5120, 5320, 5420, 5520, 5720, 7520, 7720	50
		100
Network Address Translation (NAT) VLANs —maximum number of NAT VLANs.	7520, 7720	4
Network Address Translation (NAT) Sessions —number of NAT sessions supported (non twice-NAT).	7520, 7720	1,023
Network Login —maximum number of clients being authenticated on MAC-based VLAN enabled ports.	All platforms	1,024
Network Login —maximum number of dynamic VLANs.	All platforms	1,024
Network Login VLAN VSAs —maximum number of VLANs a client can be authenticated on at any given time.	All platforms	10

Table 8: Supported Limits for the Base License (continued)

Metric	Product	Limit
Network Service Identifiers (NSI)/VLAN mappings —maximum number of VLANs to NSI mappings.	All platforms	94
Node Alias —maximum number of entries per slot.	All platforms	8,192
ONEPolicy Dynamic ACL Rules —maximum number of Dynamic ACLs supported via RADIUS VSA 232 per user in Access-List mode.	All platforms	64
ONEPolicy Roles/Profiles —maximum number of policy roles/profiles.	All platforms	63

Table 8: Supported Limits for the Base License (continued)

Metric	Product	Limit
ONEPolicy Rules per Role/ Profile—maximum number of rules per role/policy.	5320-24T-4X-XT	IPv4 Rules: 256 IPv6 Rules: 0 MAC Rules: 0 L2 Rules: 184
	4120, 5120	IPv4:128 L2:56
	4220	IPv4:256 L2:184
	5320	IPv4 Rules: 1,024 IPv6 Rules: 0 MAC Rules: 0 L2 Rules: 952
	ExtremeSwitching 5420-F, 5320-24T-24S-4XE-XT 7520, 7720	IPv4 Rules: 512 IPv6 Rules: 512 MAC Rules: 512 L2 Rules: 440
	ExtremeSwitching 5720-MW	IPv4 Rules: 1,536 IPv6 Rules: 1,536 MAC Rules: 1,536 L2 Rules: 1,464
	ExtremeSwitching 5720-MXW	IPv4 Rules: 2,048 IPv6 Rules: 2,048 MAC Rules: 2,048 L2 Rules: 1 ,976
	ExtremeSwitching 5420-M, 5520	IPv4 Rules: 1,024

Table 8: Supported Limits for the Base License (continued)

Metric	Product	Limit
		IPv6 Rules: 1,024 MAC Rules: 1,024 L2 Rules: 952
ONEPolicy Authenticated Users per Switch —maximum number of authenticated users per switch only with TCI-Overwrite enabled.	ExtremeSwitching 5520, 5720 ExtremeSwitching 5320-24T-4X-XT ExtremeSwitching 5320, 5420, 7520, 7720 4120, 4220, 5120 Stacking	1,024 128 512 256 Depends on the stack nodes, but the maximum is 1,024.
ONEPolicy Authenticated Users per Switch —maximum number of authenticated users per switch with TCI-Overwrite disabled. Note: The maximum values assume 75% utilization of VLAN-XLATE hash table.	Stacking Extreme 7520, 7720 ExtremeSwitching 5320-24T-4X-XT 4120, 4220, ExtremeSwitching 5120, 5320, 5420 ExtremeSwitching 5720 ExtremeSwitching 5520	1,536–65,534 24,576 384 768 12,288 9,216
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 5320-24T-4X-XT 4120, 4220, 5120, 5320, 5420 7520, 7720 ExtremeSwitching 5720 ExtremeSwitching 5520	384 768 24,576 12,288 9,216
ONEPolicy Authenticated Users per Port per Switch —maximum number of authenticated users per port with only with TCI-Overwrite enabled.	4120, 5120 4220 5120, 5320, 5420, 7520, 7720 5520, 5720	256 440 512 1,024

Table 8: Supported Limits for the Base License (continued)

Metric	Product	Limit
ONEPolicy Permit/Deny Traffic Classification Rules Types —total maximum number of unique permit/deny traffic classification rules types (system/stack).	5320, 5420-F, 7520, 7720	1,976
	5720-MW	6,072
	5720-MXW	8,120
	5420-M, 5520	4,024
	5320-24T-24S-4XE-XT	512
	4220	440
	4120, 5120	184
	5320-24T-4X-XT	128
ONEPolicy Permit/Deny Traffic Classification Rules Types —maximum number of unique MAC permit/deny traffic classification rules types (macsource/macdest).	5420-M, 5520	1,024
	5420-F, 5320-24T-24S-4XE-XT 7520, 7720	512
	5720-MW	1,536
	5720-MXW	2,048
	4120, 4220, 5120, 5320	N/A
ONEPolicy Permit/Deny Traffic Classification Rules Types —maximum number of unique IPv6 permit/deny traffic classification rules types (ipv6dest).	ExtremeSwitching 5420-M. 5520	1,024
	ExtremeSwitching 5420-F, 5320-24T-24S-4XE-XT 7520, 7720	512
	ExtremeSwitching 5720-MW	1,536
	ExtremeSwitching 5720-MXW	2,048
	4120, 4220, 5120, 5320	N/A
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 5320-24T-4X-XT	256
	5120, 5320, 5420-F, 5520	1,024
	ExtremeSwitching 5720-MW	1,536
	ExtremeSwitching 5720-MXW	2,048
	ExtremeSwitching 5420-M, 5320-24T-24S-4XE-XT 7520, 7720	512
	4220	256
	4120, 5120	128
ONEPolicy Permit/Deny Traffic Classification Rules Types —maximum number of unique Layer 2 permit/deny traffic classification rules (ethertype/port).	ExtremeSwitching 5320-24T-24S-4XE-XT	440
	ExtremeSwitching 5320, 5420-M, 5520	952
	ExtremeSwitching 5720-MW	1,464
	ExtremeSwitching 5720-MXW	1,976
	ExtremeSwitching 5420-F, 7520, 7720	440
	4220, ExtremeSwitching 5320-24T-4X-XT	184
	4120, 5120	56

Table 8: Supported Limits for the Base License (continued)

Metric	Product	Limit
OnePolicy Maximum number of rules supported in AccessList mode —maximum number of rules in AccessList mode.	7520, 7720	3,512
	4120, 5120	440
	4220, ExtremeSwitching 5320-24T-4X-XT	952
	ExtremeSwitching 5320, 5420-F, 5320-24T-24S-4XE-XT	4,024
	ExtremeSwitching 5420-M	8,120
	ExtremeSwitching 5720-MW	12,216
	ExtremeSwitching 5720-MXW	16,312
OSPFv2/v3 ECMP —maximum number of equal cost multipath OSPFv2 and OSPFv3.	5120, 5320, 5420, 5520, 5720	8
	Extreme 7520, 7720	64
OSPFv2 areas —as an ABR, how many OSPF areas are supported within the same switch.	All platforms except 4120 and 4220	8
OSPFv2 external routes —recommended maximum number of external routes contained in an OSPF LSDB.	ExtremeSwitching 5520	5,000
	5720, 7520, 7720	10,000
	ExtremeSwitching 5320 (except 5320-24T-4X-XT), 5420	4,000
	ExtremeSwitching 5320-24T-4X-XT	500
	5120	64
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.	5520, 5720-MXW, 7520, 7720	2,000
	5320 (except 5320-24T-4X-XT), 5420	1,600
	5120	500
OSPFv2 inter-vr or leaking routes —recommended maximum number of inter-vr routes contained in an OSPF LSDB.	5420, 5520, 5720, 7520, 7720	64
	5320 (except 5320-24T-4X-XT)	2,000
	5120	1,600
OSPFv2 interfaces —recommended maximum number of OSPF interfaces on a switch (active interfaces only).	All platforms except 4120 and 4220	500
OSPFv2 links —maximum number of links in the router LSA.	ExtremeSwitching 5520, 5720, 7520, 7720	4
	5320, 5420	400
	5120	320

Table 8: Supported Limits for the Base License (continued)

Metric	Product	Limit
OSPFv2 neighbors —maximum number of supported OSPF adjacencies.	All platforms except 4120 and 4220	4
OSPFv2 routers in a single area —recommended maximum number of routers in a single OSPF area.	ExtremeSwitching 5520	50
	ExtremeSwitching 5720, 7520, 7720	100
	5120, 5320, 5420	40
OSPFv2 virtual links —maximum number of supported OSPF virtual links.	ExtremeSwitching 5520, 5720, 7520, 7720	32
	5120, 5320, 5420	25
OSPFv3 areas —as an ABR, the maximum number of supported OSPFv3 areas.	ExtremeSwitching 5520	16
	ExtremeSwitching 5720, 7520, 7720	100
	5120, 5320, 5420	12
OSPFv3 external routes —recommended maximum number of external routes.	ExtremeSwitching 5520, 5720-MXW, 7520, 7720	10,000
	ExtremeSwitching 5320 (except 5320-24T-4X-XT), 5720-MW	7,500
	ExtremeSwitching 5420	6,000
	5320-24T-4X-XT 5120	300 64
OSPFv3 inter- or intra-area routes —recommended maximum number of inter- or intra-area routes.	ExtremeSwitching 5520	3,000
	ExtremeSwitching 5320 (except 5320-24T-4X-XT), 5720, 7520, 7720	4,000
	5420	6,000
	5320-24T-4X-XT 5120	300 64
OSPFv3 interfaces —maximum number of OSPFv3 interfaces (active interfaces only).	All platforms except 4120 and 4220	4
OSPFv3 neighbors —maximum number of OSPFv3 neighbors.	All platforms except 4120 and 4220	4
OSPFv3 virtual links —maximum number of OSPFv3 virtual links supported.	ExtremeSwitching 5520, 5720, Extreme 7520, 7720	16
	5120, 5320, 5420	12
PIM IPv4 (maximum interfaces) —maximum number of PIM active interfaces.	All platforms except 4120 and 4220	N/A

Table 8: Supported Limits for the Base License (continued)

Metric	Product	Limit
PIM IPv4 Limits —maximum number of multicast groups per dynamic rendezvous point.	5320, 5420, 5520, 5720, 7520, 7720 5120	180 32
PIM IPv4 Limits —maximum number of multicast groups per static rendezvous point.	5320, 5420, 5520, 5720, 7520, 7720 5120	180 32
PIM IPv4 Limits —maximum number of multicast sources per group.	All platforms except 4120, 4220 5320-24T-XT 5120	5,000 2,000 192
PIM IPv4 Limits —maximum number of dynamic rendezvous points per multicast group.	All platforms except 4120 and 4220.	145
PIM IPv4 Limits —static rendezvous points.	All platforms except 4120 and 4220.	32
PIM IPv6 (maximum interfaces) —maximum number of PIM active interfaces.	All platforms except 4120 and 4220.	N/A
PIM IPv6 Limits —maximum number of multicast sources per group.	All platforms except 4120, 4220 5320-24T-XT 5120	1,750 1,000 70
PIM IPv6 Limits —maximum number of multicast groups per dynamic rendezvous point.	All platforms except 4120 and 4220	70
PIM IPv6 Limits —maximum number of multicast groups per static rendezvous point.	All platforms except 4120 and 4220 5120	3,000 (depends on policy file limits) 70
PIM IPv6 Limits —maximum number of dynamic rendezvous points per multicast group.	All platforms except 4120 and 4220.	64
PIM IPv6 Limits —maximum number of secondary addresses per interface.	All platforms except 4120 and 4220.	70
PIM IPv6 Limits —static rendezvous points.	All platforms except 4120 and 4220.	32
Policy-based routing (PBR) redundancy —maximum number of flow-redirects.	All platforms	256 °

Table 8: Supported Limits for the Base License (continued)

Metric	Product	Limit
Policy-based routing (PBR) redundancy —maximum number of next hops per each flow-direct.	All platforms	32 °
Port-specific VLAN tags —maximum number of port-specific VLAN tags.	4120, 4220, 5120, 5320, 5420 5520, 5720, 7520, 7720	N/A 1,023
Port-specific VLAN tags —maximum number of port-specific VLAN tag ports.	4120, 4220, 5120, 5320, 5420 5520, 5720, 7520, 7720	N/A 4,000
Private VLANs —maximum number of subscribers. Assumes a minimum of one port per network and subscriber VLAN.	4120, 4220, 5120, 5320, 5420, 5520, 5720 7520, 7720	36 71
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.	4120, 4220, ExtremeSwitching 5120, 5320, 5420, 5520, 5720 7520, 7720	960 1,024
Private VLANs —maximum number of private VLANs in an L2-only environment.	4120, 4220, 5120, ExtremeSwitching 5320, 5420, 5520, 5720 7520, 7720	960 1,280
Route policies —suggested maximum number of lines in a route policy file.	All platforms	10,000
RIP Learned Routes —maximum number of RIP routes supported without aggregation.	5320-48T/P, 5320 24T-24S XT, 5420, 5520, 5720, 7520, 7720 5320 16P, 5320 24T/P 5320-24T-4X-XT 5120	10,000 7,000 900 64
RIP interfaces on a single router —recommended maximum number of RIP routed interfaces on a switch.	5120, 5320, 5420, 5520, 5720, 7520, 7720	256

Table 8: Supported Limits for the Base License (continued)

Metric	Product	Limit
RIPng learned routes —maximum number of RIPng routes.	5320 48T/P, 5320 24T-24S XT, 5420, 5520, 5720, 7520, 7720	3,000
	5120	64
	5320 16P, 5320 24T/P	2,000
	5320-24T-4X-XT	400
Spanning Tree (maximum STPDs) —maximum number of Spanning Tree Domains on port mode EMISTP.	ExtremeSwitching 5320-48T/P, 5420, 5520, 5720, 5320-24T-24S-4XE-XT, 7520, 7720	64
	4120, 4220, 5120, ExtremeSwitching 5320-24T/P, 5320-16P, 5320-24T-4X-XT	32
Spanning Tree PVST+ —maximum number of port mode PVST domains. Note: For all platforms, the maximum number of active ports per PVST domain depends on the maximum number of spanning tree ports supported on given platform. For example, for an ExtremeSwitching switch that supports 256 PVST domains (maximum) and 4,096 STP ports (maximum), the maximum number of active ports per PVST domain would be 16 ports ($4,096 \div 256$).	4120, 4220, 5120, ExtremeSwitching 5320, 5320-24T-4X-XT, 5320-24T-24S-4XE-XT, 5420, 5520, 5720	128
	7520, 7720	384
Spanning Tree —maximum number of multiple spanning tree instances (MSTI) domains.	ExtremeSwitching 5320-48T/P, 5320-24T-24S-4XE-XT, 5420, 5520, 5720, 7520, 7720	64
	4120, 4220, 5120, ExtremeSwitching 5320-24T/P, 5320-16P, 5320-24T-4X-XT	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 5320-48T/P, 5420, 5520, 5720, 7520, 7720	600
	4120, 4220, ExtremeSwitching 5120, 5320-24T/P, 5320-16P; 5320-24T-4X-XT, 5320-24T-24S-4XE-XT	256
Spanning Tree —maximum number of VLANs on all MSTP instances.	ExtremeSwitching 5320-48T/P, 5320-24T-24S-4XE-XT, 5420, 5520, 5720, 7520, 7720	1,024
	4120, 4220, 5120, ExtremeSwitching 5320-24T/P, 5320-16P, 5320-24T-4X-XT	512

Table 8: Supported Limits for the Base License (continued)

Metric	Product	Limit
Spanning Tree (802.1d domains) —maximum number of 802.1d domains per port.	All platforms	1
Spanning Tree (number of ports) —maximum number of ports including all Spanning Tree domains.	5320-48T/P, 5420, 5520, 5720, 7520, 7720 4120, 4220, 5120, 5320-24T/P, 5320-16P	4,096 2,048
Spanning Tree (maximum VLANs) —maximum number of STP-protected VLANs (dot1d and dot1w).	5320-48T/P, 5320-24T-24S-4XE-XT, 5420, 5520, 5720, 7520, 7720 4120, 4220, 5120, ExtremeSwitching 5320-24T/P, 5320-16P, 5320-24T-4X-XT	1,024 600
SSH (number of sessions) —maximum number of simultaneous SSH sessions.	All platforms	8
Static MAC multicast FDB entries —maximum number of permanent multicast MAC entries configured into the FDB.	All platforms	1,024
Syslog servers —maximum number of simultaneous Syslog servers that are supported.	All platforms	16
Syslog targets —maximum number of configurable Syslog targets.	All platforms	16
Telnet (number of sessions) —maximum number of simultaneous Telnet sessions.	All platforms	8
Virtual routers —maximum number of user-created virtual routers that can be created on a switch.	5320-48T/P, 5420, 5520, 5720, 7520, 7720 4120, 4220, 5120, 5320-24T/P, 5320-16P	63 16 (local-only VRs)
Virtual router forwarding (VRFs) —maximum number of VRFs that can be created on a switch. Note: * Subject to other system limitations.	5320-48T/P, 5420, 5520, 5720, 7520, 7720 4120, 4220, ExtremeSwitching 5120, 5320-24T/P, 5320-16P	960 * 16 (local-only VRs)
Virtual router protocols per VR —maximum number of routing protocols per VR.	ExtremeSwitching 5320-48T/P, 5420, 5520, 5720, Extreme 7520, 7720 4120, 4220, 5120, 5320-24T/P, 5320-16P	8 N/A

Table 8: Supported Limits for the Base License (continued)

Metric	Product	Limit
Virtual router protocols per switch —maximum number of VR protocols per switch.	ExtremeSwitching 5320-48T/P, 5420, 5520, 5720, Extreme 7520, 7720	64
	4120, 4220, ExtremeSwitching 5120, 5320-24T/P, 5320-16P	N/A
VLAN aggregation —maximum number of port-VLAN combinations on any one superVLAN and all of its subVLANs.	All platforms	1,000
VLANs —includes all VLANs. Note: Only 4,092 user-configurable VLANs are supported. (VLAN 1 is the default VLAN, and 4,095 is the management VLAN, and you may not configure them.)	All platforms	4,094
VLANs (Layer 2) —maximum number of Layer 2 VLANs.	All platforms	4,094
VLANs (Layer 3) —maximum number of VLANs performing IPv4 and/or IPv6 routing. Excludes sub-VLANs.	5320-48T/P, 5420	1,533
	4120, 5120	126
	4220, 5320-24T/P, 5320-16P	509
	5520, 5720, 7520, 7720	2,048
VLAN Port Interfaces (VPIF) —maximum number of VLAN port interfaces.	5120, 5320	40,000
	5420	60,000
	4120, 4220	65,549
	5520, 5720, 7520, 7720	131,585
VLANs (maximum active port-based) —maximum active ports per VLAN when 4,094 VLANs are configured with the default license.	5520, 5720, 7520, 7720	32
	4120, 4220, 5120	15
	5320, 5420	3
VLANs (maximum active protocol-sensitive filters) —number of simultaneously active protocol filters in the switch.	All platforms except 4120 and 4220.	16
VLAN translation —maximum number of translation VLANs. Assumes a minimum of one port per translation and member VLAN.	4120, 4220, 5120, 5320, 5420, 5520, 5720	36
	7520, 7720	71

Table 8: Supported Limits for the Base License (continued)

Metric	Product	Limit
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.	4120, 4220, 5120, 5320, 5420, 5520, 5720 7520, 7720	960 1,024
VLAN translation —maximum number of translation VLAN pairs in an L2-only environment.	4120, 4220, 5120, 5320, 5420, 5520, 5720 Extreme 7520, 7720	960 2,046
VMAN CEP —maximum number of CVIDs. Note: With 75% hash table utilization.	ExtremeSwitching 5120, 5320, 5420 ExtremeSwitching 5520, 5720	768 9,000
VRRP (v2/v3-IPv4) (maximum instances) —maximum number of VRRP instances for a single switch. 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): All platforms except 4120, 4220, 5120 5120 Scaled Mode (with groups): ExtremeSwitching 5720, Extreme 7520, 7720 5120, 5320, 5420, 5520 Sliced Mode: All platforms except 4120, 4220, 5120 5120	511 31 2,048 1,000 511 126

Table 8: Supported Limits for the Base License (continued)

Metric	Product	Limit
VRRP (v3-IPv6) (maximum instances) —maximum number of VRRP instances for a single switch. (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): All platforms except 4120, 4220, 5120 5120	511 31
	Scaled Mode (with groups): ExtremeSwitching 5720, Extreme 7520, 7720 5120, 5320, 5420, 5520	2,048 1,000
VRRP (v2/v3-IPv4/IPv6) (maximum VRID) —maximum number of unique VRID numbers per switch.	All platforms except 4120, 4220, 5120 5120	255 31
VRRP (v2/v3-IPv4/IPv6) (maximum VRIDs per VLAN) —maximum number of VRIDs per VLAN.	All platforms except 4120 and 4220 5120	255 31
VRRP (v2/v3-IPv4/IPv6) (maximum ping tracks) —maximum number of ping tracks per VLAN.	All platforms except 4120 and 4220	8
VRRP (maximum ping tracks) —maximum number of ping tracks per VRRP Instance under 128 VRRP instances.	All platforms except 4120 and 4220	8 (20 centisecond or 1 second hello interval)
VRRP (v3-IPv6) (maximum ping tracks) —maximum number of ping tracks per VRRP Instance under 128 VRRP instances.	All platforms except 4120 and 4220	8 (20 centisecond or 1 second hello interval)
VRRP (v2/v3-IPv4/IPv6) (maximum iproute tracks) —maximum number of IP route tracks per VLAN.	All platforms except 4120 and 4220	8
VRRP (v2/v3-IPv4/IPv6) —maximum number of VLAN tracks per VLAN.	All platforms except 4120 and 4220	8

Table 8: Supported Limits for the Base License (continued)

Metric	Product	Limit
VXLAN —maximum virtual networks. Note: Every VPLS instance/PSTag VLAN reduces this limit by 1. Note: Assumption is all BUM (broadcast/unknown-unicast/multicast) FDB entries are pointing to the same set of RTEPs when all VNETs use explicit flooding. Depends on whether all VNETs use standard or explicit and the number of tenant VLAN ports. Note: On ExtremeSwitching 5520 and 5420 switches, every VNET reduces this limit by 1. Every (VPLS/PSTag VLAN) + port reduces the limit by 1 on all platforms. Every VXLAN Underlay Multicast Tunnel reduces this limit by 1.	5520, 5720, 7520, 7720 4220, 5320, 5420	2,048–4,000 150-375
VXLAN —maximum tenant VLANs plus port combinations Note: Every (VPLS/PSTag VLAN) + port reduces the limit by 1.	5520, 5720, 7520, 7720 4220, 5320, 5420	4,096 150-375
VXLAN —maximum static MAC to IP bindings. Note: Every FDB entry configured reduces this limit by 1.	All supported platforms	64,000
VXLAN —maximum RTEP IP addresses	All supported platforms	512
VXLAN —maximum virtual networks with dynamic learning and OSPF extensions for VXLAN	5520, 5720, 7520, 7720 4220, 5320, 5420	4,000 375

Table 8: Supported Limits for the Base License (continued)

Metric	Product	Limit
VXLAN —or replicator role, maximum number of attached leafs per switch.	All supported platforms	256
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.	All platforms	10 with 100 DACLs
XNV authentication —maximum number of VMs that can be processed (combination of local and network VMs).	All platforms except 4120 and 4220	2,048
XNV database entries —maximum number of VM database entries (combination of local and network VMs).	All platforms except 4120 and 4220	16,000
XNV database entries —maximum number of VPP database entries (combination of local and network VPPs).	All platforms except 4120 and 4220	2,048
XNV dynamic VLAN —Maximum number of dynamic VLANs created (from VPPs /local VMs).	All platforms except 4120 and 4220	2,048
XNV local VPPs —maximum number of XNV local VPPs.	All platforms except 4120 and 4220	2,048 ingress 512 egress
XNV policies/dynamic ACLs —maximum number of policies/dynamic ACLs that can be configured per VPP.	All platforms except 4120 and 4220	8 ingress 4 egress
XNV network VPPs —maximum number of XNV network VPPs. ^P	All platforms except 4120 and 4220	2,048 ingress 512 egress

Premier License Limits

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

Table 9: Supported Limits for the Premier License

Metric	Product	Limit
Anycast RP Using PIM —maximum number of IPv4 Anycast RP set per VR.	All platforms	32
Anycast RP Using PIM —maximum number of IPv6 Anycast RP set per VR.	All platforms	32
Anycast RP Using PIM —RP peers per Anycast RP set.	All platforms	10
BGP (aggregates) —maximum number of BGP aggregates.	5420, 5520, 5720, 7520, 7720	256
	5120, 5320	256
BGP (networks) —maximum number of BGP networks.	5120, 5320, 5420, 5520, 5720, 7520, 7720	1,024
BGP (peers) —maximum number of BGP peers. Note: With default keepalive and hold timers. Note: Each BGPv4/BGPv6 peer handles a maximum of 50 routes. Note: ECMP should not be enabled for BGP.	5120, 5320, 5420, 5520, 5720, 7520, 7720	300
BGP (peer groups) —maximum number of BGP peer groups.	5120, 5320, 5420, 5520, 5720, 7520, 7720	64
BGP (policy entries) —maximum number of BGP policy entries per route policy.	5120, 5320, 5420, 5520, 5720, 7520, 7720	256
BGP (policy statements) —maximum number of BGP policy statements per route policy.	5120, 5420, 5520, 5720, 7520, 7720	1,024
	5320	820
BGP multicast address-family routes —maximum number of multicast address-family routes.	ExtremeSwitching 5520, 5720-MXW, 7520, 7720	25,000
	ExtremeSwitching 5320, 5420, 5720-MW	20,000
	5120	64

Table 9: Supported Limits for the Premier License (continued)

Metric	Product	Limit
BGP (unicast address-family routes) —maximum number of unicast address-family routes.	ExtremeSwitching 5420, 5520, 5720-MXW, 7520, 7720 (at default)	25,000
	ExtremeSwitching 5120, 5320, 5720-MW	20,000
	ExtremeSwitching 5720-MW (with ALPM enabled)	163,000
	ExtremeSwitching 5720-MXW (with ALPM enabled)	288,000
	ExtremeSwitching 5520 (with ALPM enabled)	80,000
BGP (non-unique routes) —maximum number of non-unique BGP routes.	ExtremeSwitching 5420, 5520, 5720-MXW, 7520, 7720	75,000
	ExtremeSwitching 5320, 5720-MW 5120	60,000 192
BGP ECMP —maximum number of equal cost paths per multipath for BGP and BGPv6.	5120, 5320, 5420, 5520, 7520, 7720	8
	ExtremeSwitching 5720	64
BGPv6 (unicast address-family routes) —maximum number of unicast address family routes.	ExtremeSwitching 5420, 5520, 5720-MW	6,000
	ExtremeSwitching 5720-MW (with ALPM enabled)	107,000
	ExtremeSwitching 5720-MXW, 7520, 7720	10,000
	ExtremeSwitching 5720-MXW (with ALPM enabled)	213,000
	ExtremeSwitching 5320	4,800
	5120	64
BGPv6 (non-unique routes) —maximum number of non-unique BGP routes.	ExtremeSwitching 5520 (with ALPM enabled)	40,000
	ExtremeSwitching 5420, 5520, 5720-MW	18,000
	ExtremeSwitching 5720-MXW, 7520, 7720	30,000
	ExtremeSwitching 5320 5120	14,000 64
EVPN EVI instances —maximum number of EVI instances.	All platforms	1,024
IS-IS adjacencies —maximum number of supported IS-IS adjacencies.	All platforms	128

Table 9: Supported Limits for the Premier License (continued)

Metric	Product	Limit
IS-IS ECMP —maximum number of equal cost paths per multipath for IS-IS.	All platforms	2, 4, or 8
IS-IS interfaces —maximum number of interfaces that can support IS-IS.	All platforms	255
IS-IS routers in an area —recommended maximum number of IS-IS routers in an area.	All platforms	256
IS-IS route origination —recommended maximum number of routes that can be originated by an IS-IS node.	All platforms	20,000
IS-IS IPv4 L1 routes in an L1 router —recommended maximum number of IS-IS Level 1 routes in a Level 1 IS-IS router.	All platforms	25,000
IS-IS IPv4 L2 routes —recommended maximum number of IS-IS Level 2 routes.	All platforms	25,000
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.	All platforms	20,000
IS-IS IPv6 L1 routes in an L1 router —recommended maximum number of IS-IS Level 1 routes in a Level 1 IS-IS router.	All platforms	10,000
IS-IS IPv6 L2 routes —recommended maximum number of IS-IS Level 2 routes.	All platforms	10,000
IS-IS IPv6 L1 routes in an L1/L2 router —recommended maximum number of IS-IS Level 1 routes in a L1/L2 router.	All platforms	10,000

Table 9: Supported Limits for the Premier License (continued)

Metric	Product	Limit
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.	All platforms	20,000
IS-IS IPv4/IPv6 L2 routes in an L2 router —recommended maximum number of IS-IS Level 2 routes in a Level 2 IS-IS router. The numbers documented are based on 50% IPv4 routes and 50% IPv6 routes.	All platforms	20,000
IS-IS IPv4/IPv6 L1 routes in an L1/L2 router —recommended maximum number of IS-IS Level 1 routes in a Level 1/Level2 IS-IS router. The numbers documented are based on 50% IPv4 routes and 50% IPv6 routes.	All platforms	20,000
L2 VPN: VCCV (pseudowire Virtual Circuit Connectivity Verification) VPNs per switch —maximum number of VCCV enabled VPLS VPNs.	ExtremeSwitching 5520, 7520, 7720 5120, 5320, 5420, 5720	16 N/A
L2 VPN: VPLS MAC addresses —maximum number of MAC addresses learned by a switch.	ExtremeSwitching 5520 7520, 7720 5120, 5320, 5420, 5720	64,000 140,000 N/A
L2 VPN: VPLS VPNs —maximum number of VPLS virtual private networks per switch.	5520, 7520, 7720 5120, 5320, 5420, 5720	1,023 N/A
L2 VPN: VPLS peers —maximum number of VPLS peers per VPLS instance.	5520, 7520, 7720 5120, 5320, 5420, 5720	64 N/A
L2 VPN: LDP pseudowires —maximum number of pseudowires per switch.	5520 7520, 7720 5120, 5320, 5420, 5720	3,500 7,000 N/A

Table 9: Supported Limits for the Premier License (continued)

Metric	Product	Limit
L2 VPN: static pseudowires —maximum number of static pseudowires per switch.	5520 7520, 7720 5120, 5320, 5420, 5720	3,500 7,000 N/A
L2 VPN: Virtual Private Wire Service (VPWS) VPNs —maximum number of virtual private networks per switch.	5520 7520, 7720 5120, 5320, 5420, 5720	1,023 4,090 N/A
MPLS RSVP-TE interfaces —maximum number of interfaces.	5520, 7520, 7720 5120, 5320, 5420, 5720	32 N/A
MPLS RSVP-TE ingress LSPs —maximum number of ingress LSPs.	5520, 7520, 7720 5120, 5320, 5420, 5720	2,000 N/A
MPLS RSVP-TE egress LSPs —maximum number of egress LSPs.	ExtremeSwitching 5520, 7520, 7720 5120, 5320, 5420, 5720	2,000 N/A
MPLS RSVP-TE transit LSPs —maximum number of transit LSPs.	ExtremeSwitching 5520, 7520, 7720 5120, 5320, 5420, 5720	4,000 N/A
MPLS RSVP-TE paths —maximum number of paths.	ExtremeSwitching 5520 7520, 7720 5120, 5320, 5420, 5720	1,000 2,000 N/A
MPLS RSVP-TE profiles —maximum number of profiles.	ExtremeSwitching 5520 7520, 7720 5120, 5320, 5420, 5720	1,000 2,000 N/A
MPLS RSVP-TE EROs —maximum number of EROs per path.	ExtremeSwitching 5520, 7520, 7720 5120, 5320, 5420, 5720	64 N/A
MPLS LDP peers —maximum number of MPLS LDP peers per switch.	ExtremeSwitching 5520, 7520, 7720 5120, 5320, 5420, 5720	128 N/A
MPLS LDP adjacencies —maximum number of MPLS LDP adjacencies per switch.	ExtremeSwitching 5520, 7520, 7720 5120, 5320, 5420, 5720	64 N/A
MPLS LDP ingress LSPs —maximum number of MPLS LSPs that can originate from a switch.	ExtremeSwitching 5520, 7520, 7720 5120, 5320, 5420, 5720	2,048 N/A

Table 9: Supported Limits for the Premier License (continued)

Metric	Product	Limit
MPLS LDP-enabled interfaces —maximum number of MPLS LDP configured interfaces per switch.	ExtremeSwitching 5520, 7520, 7720 5120, 5320, 5420, 5720	128 N/A
MPLS LDP transit LSPs —maximum number of MPLS transit LSPs per switch.	ExtremeSwitching 5520 7520, 7720 5120, 5320, 5420, 5720	3,500 4,000 N/A
MPLS LDP egress LSPs —maximum number of MPLS egress LSPs that can terminate on a switch.	ExtremeSwitching 5520 7520, 7720 5120, 5320, 5420, 5720	3,500 4,000 N/A
MPLS static egress LSPs —maximum number of static egress LSPs.	ExtremeSwitching 5520 7520, 7720 5120, 5320, 5420, 5720	3,500 8,000 N/A
MPLS static ingress LSPs —maximum number of static ingress LSPs.	5520 7520, 7720 5120, 5320, 5420, 5720	3,500 4,000 N/A
MPLS static transit LSPs —maximum number of static transit LSPs	5520 7520, 7720 5120, 5320, 5420, 5720	3,500 4,000 N/A
MSDP active peers —maximum number of active MSDP peers.	5120 5320, 5420, 5520, 5720, 7520, 7720	16 64
MSDP SA cache entries —maximum number of entries in SA cache.	5120 5320, 5420F 5420M 5520, 5720, 7520, 7720	192 6,000 8,000 14,000
MSDP maximum mesh groups —maximum number of MSDP mesh groups.	All platforms	16
OSPFv2/v3 ECMP —maximum number of equal cost multipath OSPFv2 and OSPFv3.	5120, 5320, 5420, 5520 5720	8 64
OSPFv2 areas —as an ABR, how many OSPF areas are supported within the same switch.	All platforms	8

Table 9: Supported Limits for the Premier License (continued)

Metric	Product	Limit
OSPFv2 external routes —recommended maximum number of external routes contained in an OSPF LSDB.	5120	64
	ExtremeSwitching 5520	5,000
	ExtremeSwitching 5720, 7520, 7720	10,000
	ExtremeSwitching 5320 (except 5320-24T-4X-XT), 5420	4,000
	ExtremeSwitching 5320-24T-4X-XT	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.	5120	64
	5520, 5720-MXW, 7520, 7720	2,000
	5320 (except 5320-24T-4X-XT), 5420	1,600
	5320-24T-4X-XT	500
OSPFv2 inter-vr or leaking routes —recommended maximum number of inter-vr routes contained in an OSPF LSDB.	5420, 5520, 5720, 7520, 7720	2,000
	5320 (except 5320-24T-4X-XT)	1,600
	5320-24T-4X-XT)	500
OSPFv2 interfaces —recommended maximum number of OSPF interfaces on a switch (active interfaces only).	5420, 5520, 5720, 7520, 7720	400
	5320	320
	5120	64
OSPFv2 links —maximum number of links in the router LSA.	5420, 5520, 5720, 7520, 7720	400
	5320	320
	5120	64
OSPFv2 neighbors —maximum number of supported OSPF adjacencies.	5420, 5520, 5720, 7520, 7720	128
	5320	96
	5120	64
OSPFv2 routers in a single area —recommended maximum number of routers in a single OSPF area.	5420, 5520	50
	5720, 7520, 7720	100
	5120, 5320	40
OSPFv2 virtual links —maximum number of supported OSPF virtual links.	ExtremeSwitching 5420, 5520, 5720, 7520, 7720	32
	5120, 5320	25
OSPFv3 areas —as an ABR, the maximum number of supported OSPFv3 areas.	ExtremeSwitching 5420, 5520	16
	ExtremeSwitching 5720, 7520, 7720	100
	5120, 5320	12

Table 9: Supported Limits for the Premier License (continued)

Metric	Product	Limit
OSPFv3 external routes —recommended maximum number of external routes.	ExtremeSwitching 5520, 5720-MXW, 7520, 7720	10,000
	5120, 5320 (except 5320-24T-4X-XT), 5720-MW	7,500
	5420	6,000
	5320-24T-4X-XT	300
	5120	64
OSPFv3 inter- or intra-area routes —recommended maximum number of inter- or intra-area routes.	5520	3,000
	5320 (except 5320-24T-4X-XT), 5720, 7520, 7720	4,000
	5420	6,000
	5320-24T-4X-XT	300
	5120	64
OSPFv3 interfaces —maximum number of OSPFv3 interfaces (active interfaces only).	5420, 5520, 5720, 7520, 7720	256
	5320	192
	5120	64
OSPFv3 neighbors —maximum number of OSPFv3 neighbors.	5420, 5520, 5720, 7520, 7720	64
	5120, 5320	48
OSPFv3 virtual links —maximum number of OSPFv3 virtual links supported.	5420, 5520, 5720, 7520, 7720	16
	5120, 5320	12
PIM IPv4 (maximum interfaces) —maximum number of PIM active interfaces.	5320, 5420, 5520, 5720, 7520, 7720	255
	5120	60
PIM IPv4 Limits —maximum number of multicast groups per dynamic rendezvous point.	5120, 5320, 5420, 5520, 5720, 7520, 7720	180
PIM IPv4 Limits —maximum number of multicast groups per static rendezvous point.	5320, 5420, 5520, 5720, 7520, 7720	3,000 (depends on policy file limits)
	5120	192
PIM IPv4 Limits —maximum number of multicast sources per group.	5320, 5420, 5520, 5720, 7520, 7720	5,000
	5120	192

Table 9: Supported Limits for the Premier License (continued)

Metric	Product	Limit
PIM IPv4 Limits —maximum number of dynamic rendezvous points per multicast group.	5320, 5420, 5520, 5720, 7520, 7720	145
	5120	32
PIM IPv4 Limits —static rendezvous points.	5120, 5320, 5420, 5520, 5720, 7520, 7720	32
PIM IPv6 (maximum interfaces) —maximum number of PIM active interfaces.	5320, 5420, 5520, 5720, 7520, 7720	255
	5120	30
PIM IPv6 limits —maximum number of multicast sources per group.	5320, 5420, 5520, 5720, 7520, 7720	1,750
	5120	70
PIM IPv6 limits —maximum number of multicast groups per dynamic rendezvous point.	5120, 5320, 5420, 5520, 5720, 7520, 7720	70
PIM IPv6 limits —maximum number of multicast groups per static rendezvous point.	5320, 5420, 5520, 5720, 7520, 7720	3,000 (depends on policy file limits)
	5120	70
PIM IPv6 limits —maximum number of multicast groups per dynamic rendezvous points per multicast group.	5320, 5420, 5520, 5720, 7520, 7720	64
	5120	20
PIM IPv6 limits —maximum number of secondary addresses per interface	5320, 5420, 5520, 5720, 7520, 7720	70
	5120	30
PIM IPv6 limits —maximum number of static rendezvous points.	5120, 5320, 5420, 5520, 5720, 7520, 7720	32
PTP/1588v2 Clock Ports	7520-48Y, 7720-32C	32 for boundary clock
PTP/1588v2 Clock Instances	5420, 5520, 5720	1 transparent clock
	7520-48Y, 7720-32C	1 boundary clock
PTP/1588v2 Unicast Static Masters	7520-48Y, 7720-32C	10 entries per clock type

Notes for Limits Tables

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



Open Issues, Known Behaviors, and Resolved Issues

[Open Issues](#) on page 83

[Known Behaviors](#) on page 84

[Resolved Issues in Switch Engine 33.3.1-Patch1-4](#) on page 85

[Resolved Issues in Switch Engine 33.3.1](#) on page 85

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

Open Issues

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

Table 10: Open issues in version 33.3.1

Defect Number	Description
General	
EXOS-35434	4120 Switch Engine returns invalid cable length values when cable diagnostics are executed using the run diagnostics cable command.
EXOS-37658	Scaling ACLs beyond system capacity have unpredictable results.
EXOS-37847	The SNMP get value returned for extremeCpuMonitorTotalUtilization doesn't match the value of the "top" command on a 5120 series stack.

Known Behaviors

The following are limitations in Switch Engine system architecture that has yet to be resolved.

Table 11: Known Issues, Platform-Specific, and Feature Change Requests (CRs) in 33.3.1

Defect Number	Description
General	
EXOS-37508	<p>Switches running previous ExtremeXOS versions can't be cloned to version 33.3.1. Please follow the workaround mentioned below for respective cloning use case:</p> <p>Workaround:</p> <p>Standalone to USB: Install the provided platform-specific cloning xmod in both primary and secondary partitions using the following CLI commands before cloning to version 33.3.1:</p> <pre>install image /usr/local/ext/<platform specific xmod> install image /usr/local/ext/<platform specific xmod>secondary</pre> <p>Example:</p> <pre>X435-8P-2T-W.5 # install image /usr/local/ext/summitlite_arm-clone-1.2.3.3.xmod X435-8P-2T-W.5 # install image /usr/local/ext/summitlite_arm-clone-1.2.3.3.xmod secondary</pre> <p>Standalone to standalone: Upgrade the switch to version 33.3.1 in both partitions before cloning the switch.</p> <p>Standalone to stack (ZTP Stacking): Upgrade the switch to version 33.3.1 in both partitions before replacing or adding a node to a stack running version 33.3.1.</p>
EXOS-37862	<p>When installing xmod to a switch running version 33.2.x, the following error message is displayed despite a successful xmod installation:</p> <pre>ERROR: cloning for summitlite_arm only currently supported for USB.</pre>

Resolved Issues in Switch Engine 33.3.1-Patch1-4

The following issues were resolved in Switch Engine 33.3.1-Patch1-4. Version 33.3.1-Patch1-4 includes all fixes up to and including versions 31.6, 31.7, 32.1, 32.2, 32.3, 32.4, 32.5, 32.6.x, 32.7.x, 33.1.1, and 33.2.1.

Table 12: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 33.3.1-Patch1-4

Defect Number	Description
General	
CFD-12729	Generic error is returned while trying to delete a node alias entry using SNMP in a stack.
CFD-13847	Memory leak occurs in the Cloud-connector process when the switch is onboarded to ExtremeCloud IQ - Site Engine and multiple STP domains are configured on it.
EXOS-37875	Configuration update from ExtremeCloud IQ fails on switches running patch images due to the following error: "NOS API failure. Status=802. RESTAPI server response incomplete."
EXOS-38001	Getting parse error while loading MIB file to an NMS tool, such as iReasoning.
EXOS-38002	Unable to delete node alias entries associated with the ports from backup/standby slots using SNMP set.

Resolved Issues in Switch Engine 33.3.1

The following issues were resolved in Switch Engine 33.3.1. Version 33.3.1 includes all fixes up to and including versions 31.6, 31.7, 32.1, 32.2, 32.3, 32.4, 32.5, 32.6.x, 32.7.x, 33.1.1, and 33.2.1.

Table 13: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 33.3.1

Defect Number	Description
General	
CFD-11140	STP flag is not removed from VLAN even though the VLAN is no longer part of the STP domain.
CFD-11925	SNMP stops responding briefly after sending two consecutive save config snmpset.
CFD-12017	Randomly ports do not become active when multiple ports using tri-speed BaseT optics are coming up at the same time.
CFD-12698	SNMP timeout was seen after enabling device and port statistics in ExtremeCloud IQ - Site Engine.
CFD-12788	Switch crashes when the internal dynamic VLAN counter becomes 0

Table 13: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 33.3.1 (continued)

Defect Number	Description
CFD-12837	ARP entry is not properly learned when a host moves from a sub-VLAN to another sub-VLAN.
CFD-12888	After copying an ems filter having strict match conditions to a new ems filter, Climaster process crash occurs while executing the show configuration ems command.
CFD-12904	ELRP Dynamic VLAN interval timers does not work
CFD-12915	In 5520 and 7720 platforms, multicast traffic with TTL 1 is flooded to all ports in the VLAN even though IGMP snooping is enabled.
CFD-12966	While fetching optic information for bidirectional GBICs for CLI, the output displays opposite directions than intended one.
CFD-12999	Restrictions are needed in CLI such that it should not accept policy name that has special characters.
CFD-13077	Auto-discovery is not supported in 5320 platform but it shows enabled in the show stacking-support command.
CFD-13111	Upgrading the switch through Chalet fails.
CFD-13134	When a switch receives IGMP packet on its to-port of remote-mirroring, and if the packet tag matches the remote-mirroring tag, the switch sends back the same packet on the received port.
CFD-13139	The show tech command doesn't capture VLAN information if collected immediately after factory default start.
CFD-13178	Memory leak in expy3 process while polling LLDP information that contains a custom TLV with subtype 0.
CFD-13218	NAC client IP is listed backward when it is resolved using Identity Management.
CFD-13253	A new telnet session couldn't be created on the switch when the software is being installed.
CFD-13298	BFD flag/config is not reset when running disable bfd vlan and unconfigure bfd vlan commands.
CFD-13299	Getting an error "Command parse token stack overflow" while using tab in the command show iproute ipv4 .
CFD-13473	Can't exit out of show ports vlan statistics no-refresh command output.
CFD-13491	ELRP HW assist flooding the network on universal platforms.
CFD-13554	SNMP trap VR configuration is applied incorrectly when it is done using SNMPSet operation.
CFD-13576	Process rtmgr crashes with signal 11 leading to switch restart.
EXOS-37183	Latency issues observed with 5720 switches with 100 Mbps.
EXOS-37184	5720 series port's link state stays active even when the port is disabled or disconnected.

Table 13: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 33.3.1 (continued)

Defect Number	Description
5420 Series	
CFD-12460	Ports that have no optics connected become active after changing the port settings to 100 Mbps Full Duplex in 5420F-24S.
SummitStack	
CFD-11560	The mixed OS stack can be upgraded with a non ".lst" file.
CFD-12099	When a slot boots up in a stack, SNMP traps are generated for ports even though those ports are marked as not present in the slot.
CFD-12699	EDP process crash occurs when executing [extremeEdpNeighborTable https://mibs.observeium.org/mib/EXTREME-EDP-MIB/#extremeEdpNeighborTable] table.
CFD-12787	Stack fails to come up when using 100G-FR optics in 7520 series.
CFD-13128	Memory depletion in the backup node due to a memory leak in the LLDP process.
CFD-13212	In 4120 and 5120 stacks of more than 3 nodes, the traffic egressing untagged VLAN in slots 3 or above has an additional tag value of 0.