Switch Engine v33.2.1 Release Notes

New Features, Improvements, and Known Issues

9039155-00 Rev AA
January 2025

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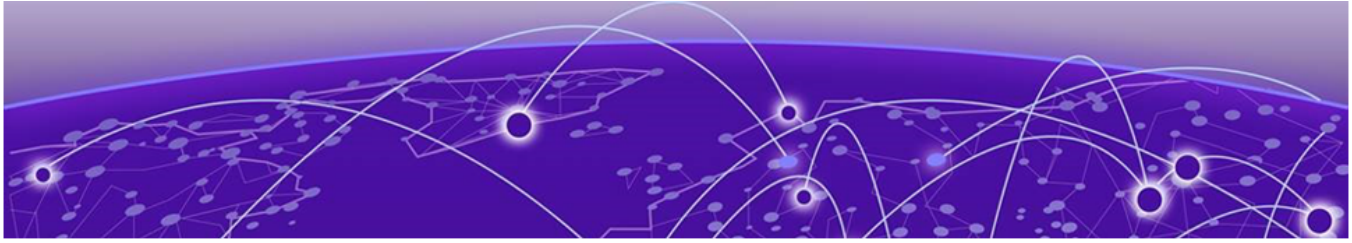
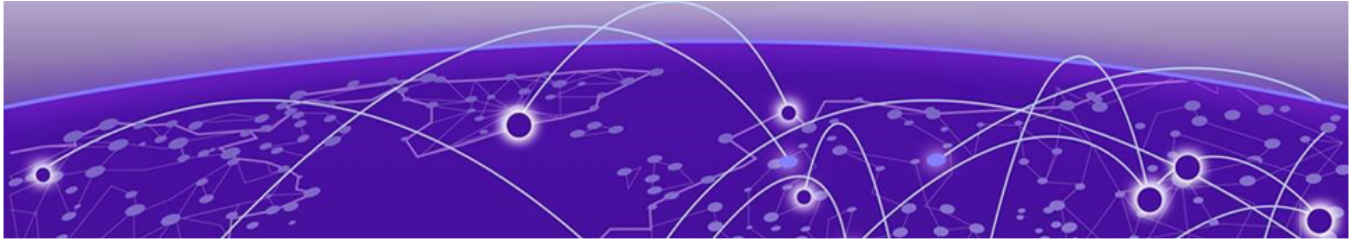


Table of Contents



Abstract

Switch Engine v33.2.1 Release Notes by Extreme Networks, Inc., released in January 2025, provides new feature and software information, scaling limits, and open and known deficiences and resolved issues. The document provides details on hardware and software compatibility, default settings, image file names, supported platforms, and guidance for upgrading. Additionally, it outlines limits for various licenses and features in the software. The document details changes and corrections for features supported in version 33.2.1, such as Extreme Platform ONE and 4000 Series full command line support. Furthermore, the release notes highlight known behaviors and limitations in the Switch Engine system architecture, and they list numerous resolved issues across different patches, including improvements in security profile operation. The document 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 SLX routers, the product is referred to as *the switch* or *the router*.

Table 1: Notes and warnings

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

Table 2: Text

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

Table 3: Command syntax

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

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

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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 v33.2.1 Command References*
- *Switch Engine v33.2.1 Licensing Guide*
- *Switch Engine and ExtremeXOS v33.2.x EMS Messages Catalog*
- *Switch Engine v33.2.1 User Guide*
- *Switch Engine v33.2.1 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*

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Extreme Portal

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

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2. In the list of categories, expand the **Product Announcements** list.
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4. Select **Subscribe**.
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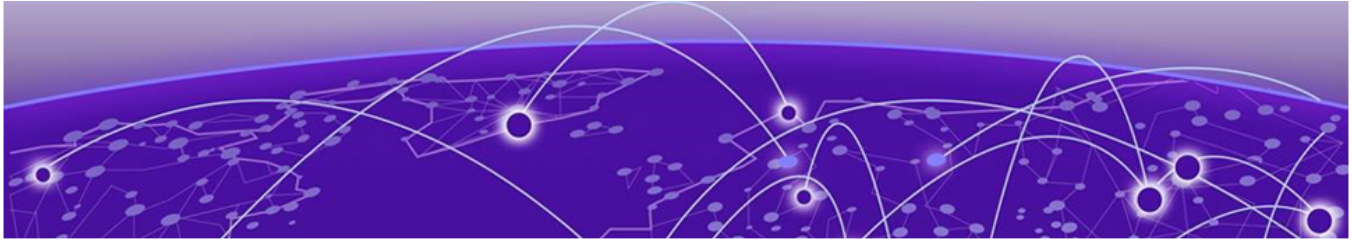
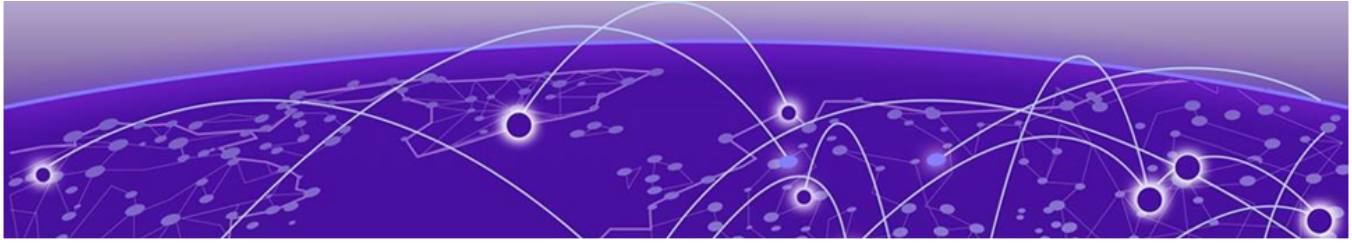
You can modify your product selections or unsubscribe at any time.



Overview

These release notes document Switch Engine 33.2.1, which adds features and resolves software deficiencies.



Security Information

The following section covers important security information for Switch Engine 33.2.1.

Linux Kernel

Switch Engine 33.2.1 uses Linux Kernel 5.10.

OpenSSL Version

Switch Engine 33.2.1 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 v33.2.1 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

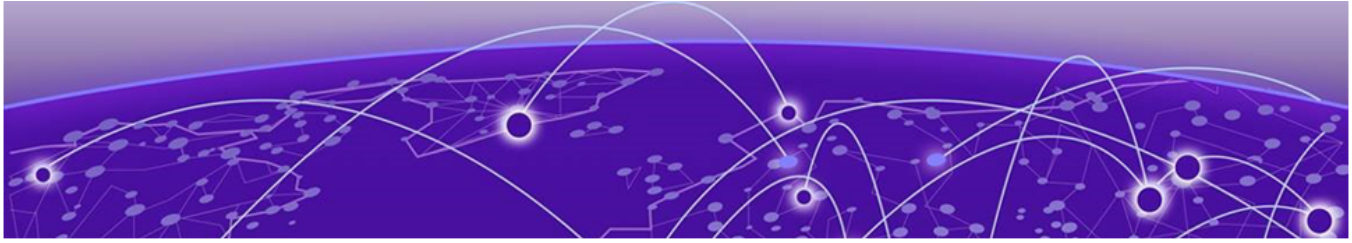
New ExtremeSwitching 5420 and 5520 PoE switches use a new version of the PoE microcontroller that prevents the switch from downgrading to older EXOS versions and prevents operating system switchover to unsupported VOSS versions.

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):

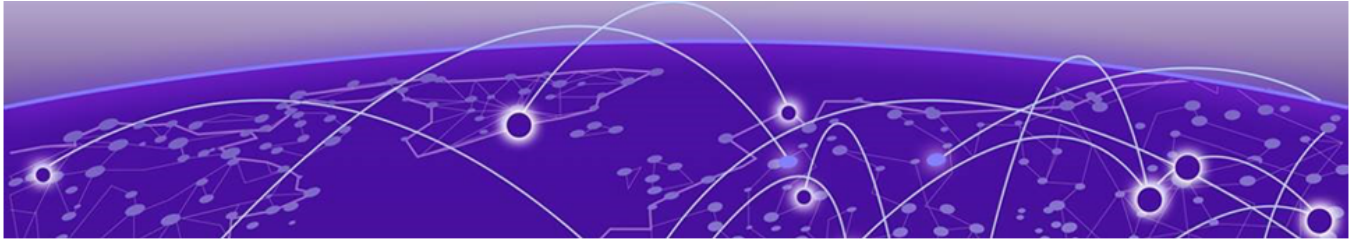
```
# show inline-power stats
Inline-Power Slot Statistics
Firmware status               : Operational
Firmware revision             : 5.0.0b4
Total ports powered           : 3
Total ports awaiting power    : 20
Total ports faulted           : 0
Total ports disabled          : 1
```



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 v33.2.1 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 4: 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.	

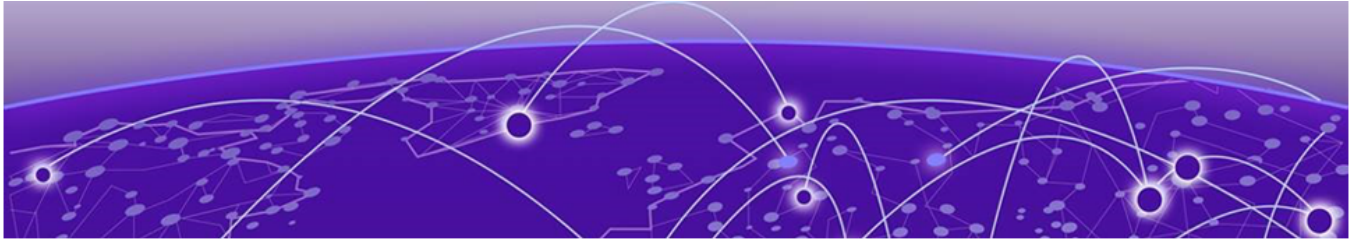
[a] If you choose enhanced security mode when initially setting up the switch or after running `unconfigure switch all`.

Table 4: 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 4: Default Switch Engine Settings (continued)

Feature	31.6 and later	32.4 and later
PIM Snooping	Disabled.	
PoE Fast PoE Perpetual PoE	Enabled. Disabled. Disabled.	
RADIUS	Disabled for both switch management and network login.	
RIP	Disabled.	
RMON	Disabled. However, even in the disabled state, the switch responds to RMON queries and sets for alarms and events.	
sFlow	Disabled.	
SNMP server	Disabled. [a]	
SSH	Disabled.	
Stacking-support	Enabled.	Disabled for 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]	

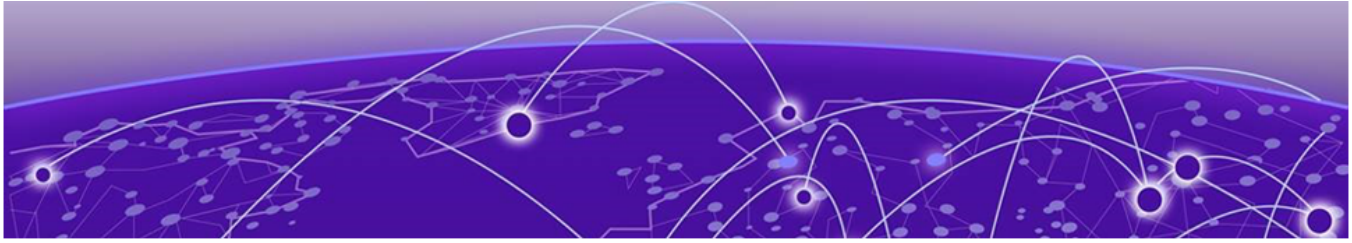


Switch Engine Image File Names

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

Table 5: Switch Engine Image Types (Prefixes)

Switches	Image File Type (Prefix)
4120	`rzg2` Example: `rzg2-33.1.1.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 33.2.1

This section lists the new and corrected features supported in the 33.2.1 software:

4000 Series Full Command Line Functionality

Version 33.2.1 adds support for full command line functionality on the 4000 Series platforms when a validated Extreme Platform ONE or Pilot license is applied to the switch. This activation enables all configuration commands.

Cloud-management platforms and direct switch access (telnet and ssh, for example) using regular administrator credentials.

Supported Platforms

4120 and 4220 series switches.

7520 and 7720 Ordinary Clock Support

Version 33.2.1 adds Ordinary Clock support on 7520-48Y and 7720-32C series switches. Ordinary Clock is a clock that has a single Precision Time Protocol (PTP) port in a domain and maintains the timescale used in the domain. It may serve as a source of

time, as in a master clock, or may synchronize to another clock, making it a secondary clock.

Supported Platforms

7520-48Y and 7720-32C series switches.

Additional Profile Support for Boundary Clock

Version 33.2.1 adds the following profiles to Boundary Clock support on 7520-48Y and 7720-32C series switches:

- AES67-2018
- SMPTE ST2059-2:2021

Supported Platforms

7520-48Y and 7720-32C series switches.

Alternate MAC Address Support

Version 33.2.1 adds support for configuring an alternate MAC address using the command line. This command enables you to set a new MAC address that differs from the original one stored in the Electrically Erasable Programmable Read-Only Memory (EEPROM). The alternate MAC address is saved in a persistent "well-known info" database, which is used by the operating system for switch management tasks. When restarting, the operating system detects if an alternate MAC address has been configured. If it has, the operating system overwrites the factory MAC address.

This feature is only applicable to standalone switches and does not support switch stacks.

Supported Platforms

All platforms.

Limitations

The following limitations apply to this feature:

- You cannot configure a Locally Administered Address (LAA) as the alternate MAC address.
- You cannot configure multicast MAC addresses as the alternate MAC address.

New CLI Command

The following new CLI command is introduced in this version:

```
configure switch mac-address
```

Extreme Platform ONE Licensing Support

Version 33.2.1 adds Extreme Platform ONE support and licensing for Universal platforms. Extreme Platform ONE is a unified touch point for Extreme Networks offered applications. It simplifies the user experience and provides automation at scale.

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

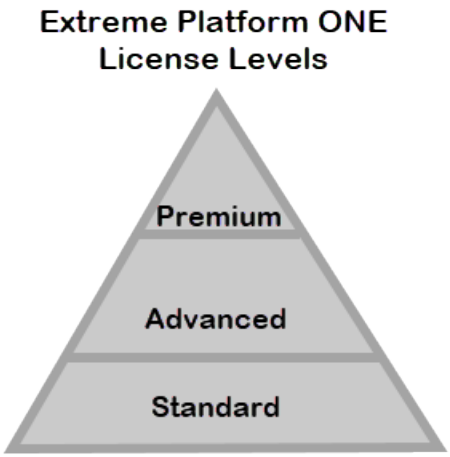


Figure 1: Extreme Platform ONE License Levels

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

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

For full Universal licensing information, see *Switch Engine v33.2.1 Licensing Guide*.

Supported Platforms

All Universal platforms.

Fabric Attach Timeout Enhancements

This version supports the configuration of Fabric Attach agent/assignment timeout and Fabric Attach discovery timeout.

Supported Platforms

All platforms.

New CLI Commands

The following are new commands for this feature:

```
configure fabric attach agent-timeout timeout

configure fabric attach discovery-timeout timeout
```

Fallback VLANs in Policy

In version 33.2.1, the fallback VLAN functionality provided with Netlogin with Policy disabled can also be achieved with Policy enabled by using Policy admin rules. A policy profile is assigned to a port (or port/mac address combination). The profile has a default pvid specified and pvid-status enabled. Authentication mode "optional" must be enabled for both Netlogin MAC and dot1x enabled ports in order to handle first authentication failure due to service unavailability. If authentication fails or the RADIUS server is unavailable, the user will be placed in the VLAN specified as the profile's default pvid (the **show netlogin session** command will display the entries as "Auth Failed".

Windows dot1x clients must be set with "Fallback to unauthorized network access". In this case, because the authentication has failed, the session is marked as such but the traffic is handled by the admin profile as long as the authentication mode is set as "optional".

An enhancement is added to version 33.2.1 that applies to existing Netlogin sessions that fail to re-authenticate because of service unavailable. This enhancement works with both authentication modes: "optional" and "required." However, "optional" is required for the admin-profile to allow traffic to flow. The user can specify an option to retain the Netlogin session, including the original VLAN assignment in this case.

This feature only works on re-authentication, because the unavailability or failure of the first authentication is handled by the existing administration rule Policy feature.

Configuration Examples

You can active this enhancement by enabling the following command options:

`configure netlogin mac authentication database-order radius` (only required for MAC-auth and not dot1x)

```
configure netlogin keep-session-reauth-svc-unavail on

configure radius netlogin keep-alive interval 78

configure radius netlogin keep-alive on
```

Limitations

The following are limitations for this enhancement:

- Netlogin dot1x session-timeout value sent using RADIUS must be higher than the radius keep-alive timer value.
- "Keep Session On Re-authentication Service Unavailable - On/Off" attribute doesn't apply for non-Policy Netlogin service unavailability feature.

- For dot1x, this feature depends on RADIUS keep-alive being enabled (on).
- It is recommended that **`keep-session-on-reauth-svc-unavail`** remain off for non-Policy mode.
- For re-authentication during service unavailable, it is possible that the dot1x client is triggered to re-authenticate due to timing of the re-authentication period and RADIUS keep-alive are synchronized. It is recommended that the dot1x client be set to use "Fallback to unauthorized network access". When this happens, the dot1x re-authentication timer does not get re-initialized but the session is still kept.

Supported Platforms

All platforms.

Instant Port Enhancements

Version 33.2.1 adds the Cisco Discovery Protocol (CDP) and Link Layer Discovery Protocol (LLDP) Voice VLAN options to the VLAN part of Instant Port Profile. This adds the following feature functionality:

- LLDP Voice VLAN options:
  - Enable or disable LLDP advertisement of 802.1 VLAN ID and port protocol of VLAN.
  - Enable or disable med Voice VLAN DSCP:
    - Med VLAN DSCP Value
  - Enable or disable LLDP advertisement of med Voice Signaling VLAN DSCP:
    - VLAN DSCP Value
- CDP Voice VLAN Options:
  - Enable or disable CDP advertisement of VLAN.
  - Enable or disable CDP advertisement of power available.

Supported Platforms

All platforms.

IPv4 Multicast Source Discovery Protocol on User Virtual Routers

Version 33.2.1 adds support for configuring and operating IPv4 Multicast Source Discovery Protocol (MSDP) over user-created Virtual Routers (VR). This includes the following functionality:

- Ability to configure IPv4 MSDP on IPv4 PIM-SM networks on user-defined VRs.
- MSDP peering on user VRs.
- Peer authentication using TCP MD5.
- Peer-based SA policing/filtering.
- MSDP Mesh Group support.
- MSDP Cache Server (SA Request/Response mechanism).
- Default MSDP peer and associated policy.

- Multiple default MSDP peers.
- Export of locally registered multicast sources.
- SNMP MIB access (read-only) on all scalar and tabular objects as specified by RFC-4624.

Supported Platforms

All platforms that support MSDP.

Multiple Fabric Attach VLAN-ISID Attributes

Version 33.2.1 adds support for processing multiple VLAN/NSI pairs in Radius VSA 171: Fabric-Attach-ISID. The processed VLAN/NSI information is propagated using LLDP Fabric Attach TLV if a Fabric Attach Server is present.

Supported Platforms

All platforms.

Netlogin Policy Session Re-authentication

Version 33.2.1 adds support for enabling OnePolicy to have a fallback VLAN in case the authentication service is not available when re-authentication occurs. This allows the VLAN assignment by the policy to be kept. See the previous entry on Fallback VLANs.

Supported Platforms

All platforms.

New CLI Command

The following new command supports this feature:

configure netlogin keep-session-reauth-svc-unavail

Security Profile Updates

This version adds the following security profile updates:

- https is disabled by default in the Korea CC mode for switches. You can enable https using the enable https command.
- The web interface (Chalet) is disabled in the Korea CC mode for switches.
- The Enhanced Security mode is enabled as part of the Korean-CC mode.
- The SSH server is enabled by default in the Enhanced Security mode.

Supported Platforms

All platforms.

Support for x509v3-rsa2048-sha256 host key

Version 33.2.1 adds support for the x509v3-rsa2048-sha256 host key. The SSH server can present its x509v3 certificate (host key) to clients, and external SSH clients can authenticate the SSH server with the server's x509v3 certificate.

Supported Platforms

All platforms.

New CLI Command

configure ssh2 x509v3 key algorithm

Example

The following command configures the x509v3-rsa2048-sha256 key algorithm:

```
configure ssh2 enable x509v3 key algorithm x509v3-rsa2048-sha256
```

Modified CLI Command

The configure ssl csr, download ssl certificate, show ssl, and show ssl csr commands add the ssh keyword to the syntax:

- configure ssl csr {ssh} privkeylen *length* country *code* organization *org_name* common-name *name*
- download ssl *ip_address* certificate csr-cert {ssh} *file_name* {ocsp [on | off]
- show ssl {manufacturing} {certificate {ssh} | detail}

RADIUS Netlogin Keep Alive

Version 33.2.1 adds support for a keep alive message on the Netlogin RADIUS server. This checks for RADIUS server reachability in order to limit unnecessary re-authentication.

Supported Platforms

All platforms.

New CLI Commands:

The following new commands support this feature:

configure radius netlogin keep-alive

configure radius netlogin keep-alive interval

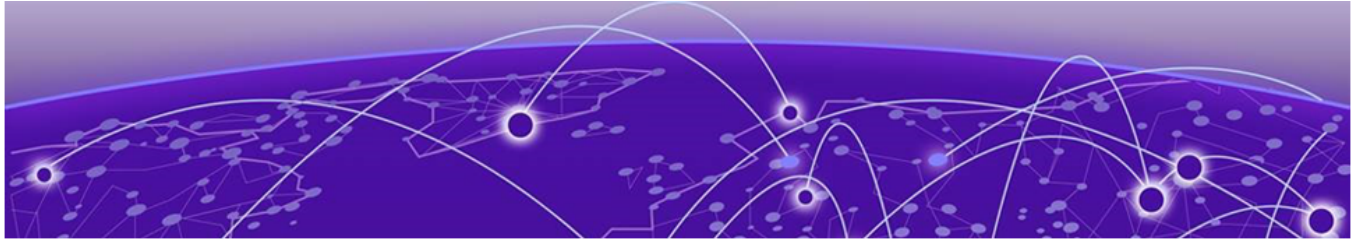
Modified CLI Command

The **show radius** command is updated with Netlogin RADIUS server information (lines 20-21):

```
# show radius
RADIUS Default State:   disabled
RADIUS Default Timeout: 3 seconds
RADIUS Algorithm: standard
RADIUS Retries: 3
RADIUS port bounce VSA: off
RADIUS dynamic-authorization: disabled
RADIUS TLS TCP Timeout: default
RADIUS TLS OCSP: off
RADIUS TLS OCSP Attributes:
  Nonce               : off
  Signer ocsp-nocheck : off
  Override Server URL : none
Switch Management RADIUS: disabled *
Switch Management RADIUS server connect time out: 3 seconds *
Switch Management RADIUS Accounting: disabled *
Switch Management RADIUS Accounting server connect time out: 3 seconds
Netlogin RADIUS: enabled
Netlogin RADIUS server connect time out: 3 seconds *
Netlogin RADIUS server keep alive: on
Netlogin RADIUS server keep alive interval: 60 seconds
Netlogin RADIUS server's last known reachability status: unreachable
Netlogin RADIUS Accounting: disabled *
Netlogin RADIUS Accounting server connect time out: 3 seconds

Primary Netlogin RADIUS server: Status is Active
    host name     :
    IP address    :  1.2.3.4
    Server IP Port:  1812
    Protocol      :  UDP
    Client address:  10.127.2.33 (VR-Mgmt)
    Retries       :  3 *
    Timeout       :  3 *
    shared secret :  #$S4/Mj804b1yid8IYgRCNF2qdlGKD+A==
Access Requests   :  157        Access Accepts    :  0
Access Rejects    :  0          Access Challenges :  0
Access Retransmits:  117        Client timeouts   :  156
Bad authenticators:  0          Unknown types     :  0
Round Trip Time   :  0

Legend: An asterisk (*) indicates a global value is in use.
```



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 28)—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 v33.2.1 User Guide*.

Changing Your Network Operating System

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

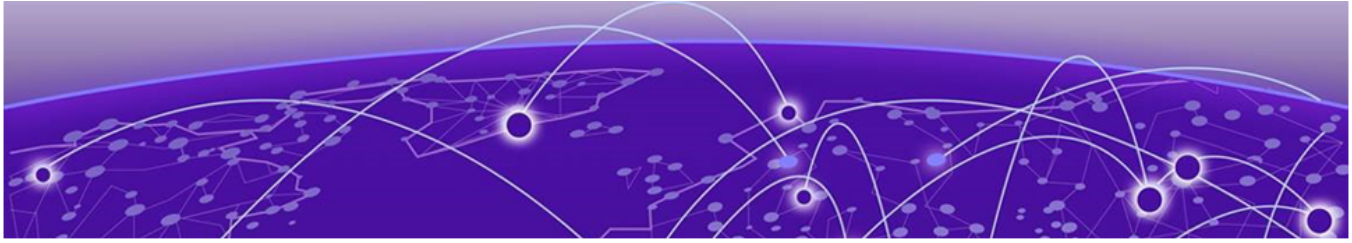
Caution
Changing your network operating systems deletes all configuration files, debug information, logs, events, and statistics information of the previous network operating system.

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 v33.2.1 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.

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

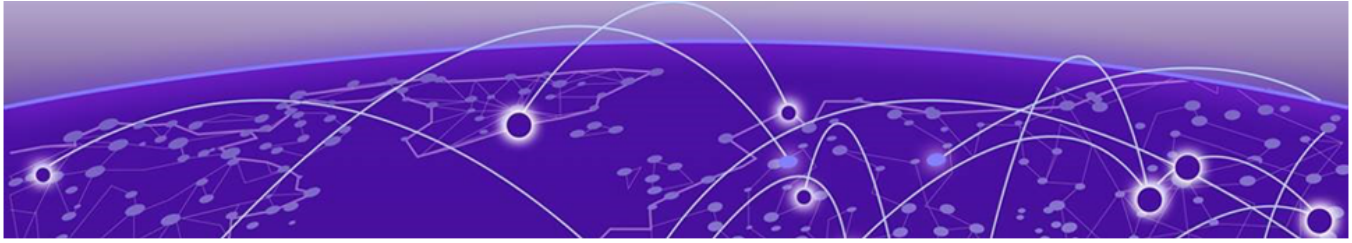
Table 6: Supported Platforms

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 6: Supported Platforms (continued)

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

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



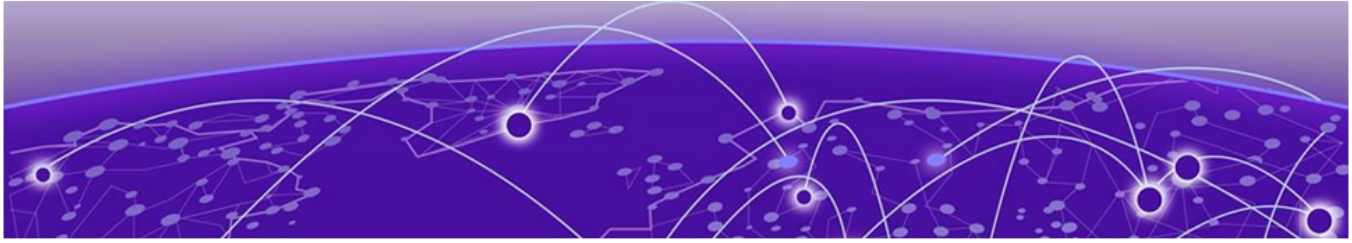
Extreme Hardware/Software Compatibility and Recommendation Matrices

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*.

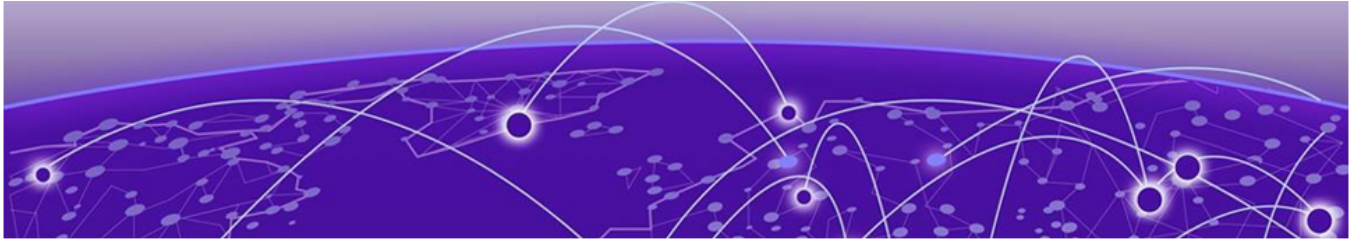
The latest versions of this and other Switch Engine guides are at: www.extremenetworks.com/documentation/.



Compatibility with Extreme Management Center

Switch Engine 33.2.1 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 33.2.1 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.

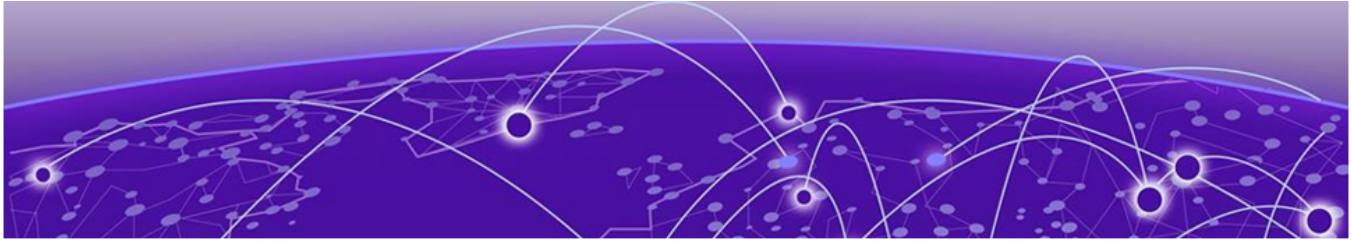


Supported MIBs

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 v33.2.1 User Guide*.



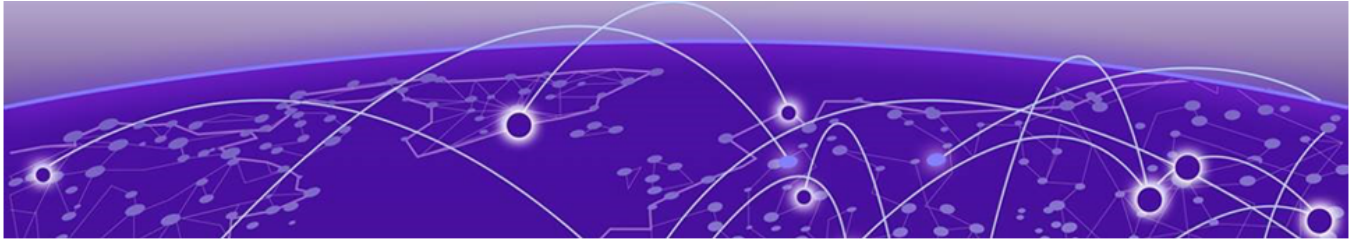
Tested Third-Party Products

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

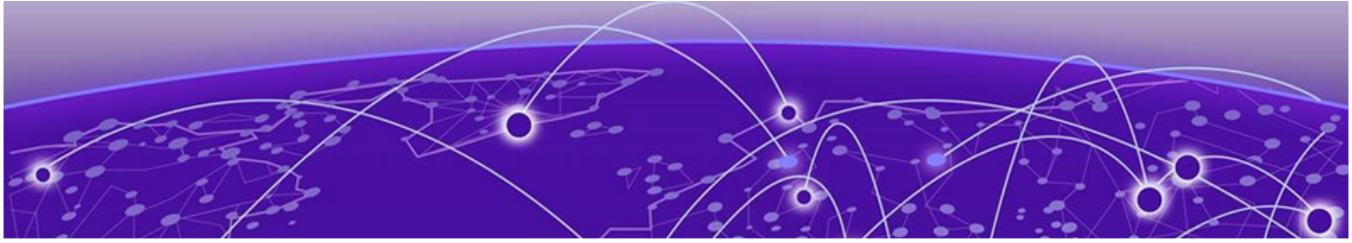
Tools used to assess ICMP attack vulnerability:

- SSPing
- Twinge
- Nuke
- WinFreeze

Port Scan Assessment

Tools used to assess port scan assessment:

- Nessus



Limits

This chapter summarizes the supported limits in Switch Engine 33.2.1.

Limits Overview

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

- Base License Limits on page 39
- Premier License Limits on page 80

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.

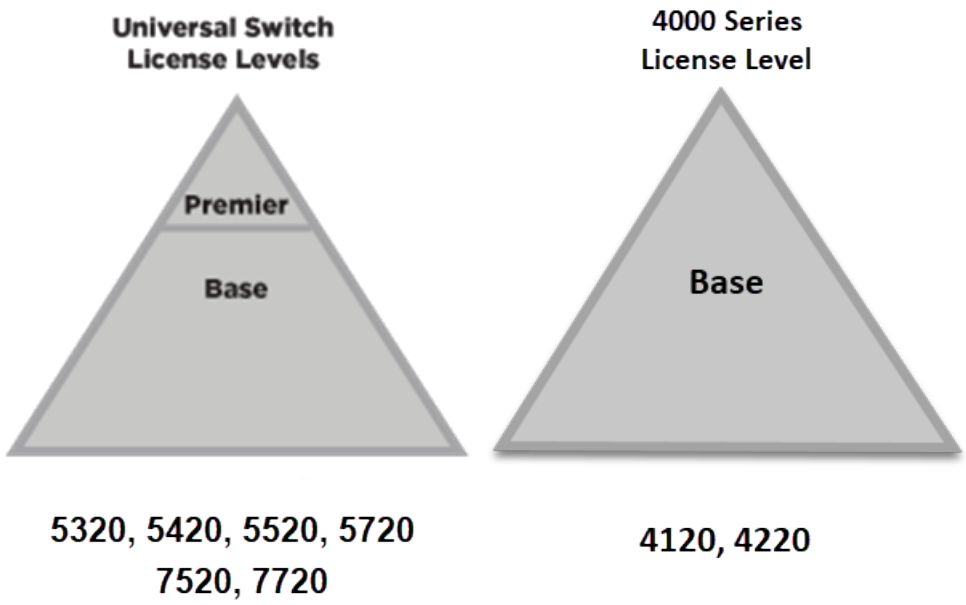


Figure 2: License Levels for Universal Switches

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

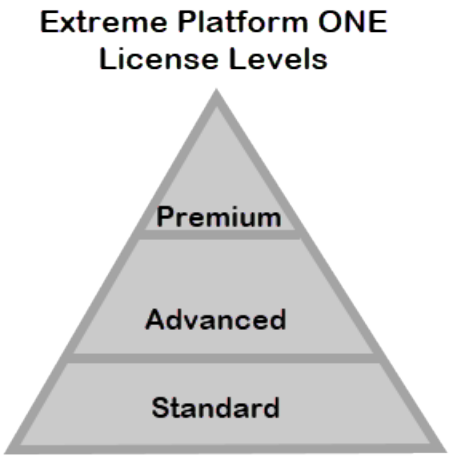


Figure 3: Extreme Platform ONE License Levels

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

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

Universal devices with a verified Extreme Platform ONE 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 also provides operating system product service, management, and insights.

For more information about licenses, see *Switch Engine v33.2.1 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.

Note
Switch Engine 33.1.100 only supports the 5320 Series, 5420 Series, 5520 Series, 5720 Series, 7520 Series, and 7720 Series. The 4120 and the 4220 are not supported.

Table 7: 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	512 ingress 128 egress
	4220	2048 ingress 256 egress
	ExtremeSwitching 5320, 5420	6,144 ingress 512 egress
	Extreme Networks 7520, 7720	6,000 ingress 2,000 egress
	ExtremeSwitching 5520	2,048 ingress 512 egress
	ExtremeSwitching 5720-MW	6,144 ingress 3,072 egress
	ExtremeSwitching 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 7: Supported Limits for the Base License (continued)

Metric	Product	Limit
Access lists (policies)—maximum number of rules in a single policy file.Notes for Limits Tables on page 88	ExtremeSwitching 5320-48T/P, Extreme 7520, 7720	8,192 ingress 1,024 egress
	ExtremeSwitching 5320-24T/P, 5320-16P	8,192 ingress 512 egress
	ExtremeSwitching 5420M	18,000 (rules double-wide (160-bit)) ingress 36,000 (rules single-wide (80-bit, default)) ingress 1,024 egress
	ExtremeSwitching 5420F	8,000 (rules double-wide (160-bit)) ingress 16,000 (rules single-wide (80-bit, default)) ingress 1,024 egress
	ExtremeSwitching 5520	9,216 ingress 1,024 egress
	ExtremeSwitching 5720-MW	18,432 (80-bit) ingress 8,192 egress
	ExtremeSwitching 5720-MXW	36,864 (80-bit), 18,432 (160-bit) ingress 12,288 egress
Access lists (policies)—maximum number of rules in a single policy file in first stage (VFP).	ExtremeSwitching 5520, 5720	2,048 ingress only
	ExtremeSwitching 5320-48T/P, 5420, Extreme 7520, 7720	1,024 ingress only
	4120, 4220, ExtremeSwitching 5320-16P, 5320-24T-4X-XT	512 ingress only

Table 7: Supported Limits for the Base License (continued)

Metric	Product	Limit
Access lists (slices)—number of ACL slices.	ExtremeSwitching 5720, Extreme 7520, 7720	12 ingress 4 egress
	ExtremeSwitching 5320-48T/P, 5420, 5520	18 ingress 4 egress
	4120, 4220, ExtremeSwitching 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, Extreme 7520	4,096
BFD sessions (Software Mode)—maximum number of BFD sessions.	All platforms except 4120 and 4220 (default timers—1 sec).	512
BFD IPv4 sessions (Hardware Assisted)—maximum number of IPv4 BFD sessions.	Extreme 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.	Extreme 7520, 7720	425 (PTP not enabled)
BGP (multicast address-family routes)—maximum number of multicast address-family routes.	ExtremeSwitching 5520, 5720-MXW, Extreme Networks 7520, 7720	25,000
	ExtremeSwitching 5420, 5720-MW	20,000
	ExtremeSwitching 5320 (except 5320-24T-4X-XT)	8,000
	ExtremeSwitching 5320-24T-4X-XT. 5320-24T-24S-4XE-XT	2,000

Table 7: Supported Limits for the Base License (continued)

Metric	Product	Limit
BGP (non-unique routes) — maximum number of nonunique BGP routes.	ExtremeSwitching 5420, 5520, 5720MXW, Extreme Networks 7520, 7720	75,000
	ExtremeSwitching 5720-MW	60,000
	ExtremeSwitching 5320 48T/P , 5320-24T-24S-4XE-XT	36,000
	ExtremeSwitching 5320 16P, 24T/P	24,000
	ExtremeSwitching 5320-24T-4X-XT	2,700
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.	ExtremeSwitching 5420, 5520, 5720MXW, Extreme Networks 7520, 7720 (at default)	25,000
	ExtremeSwitching 5720-MW	20,000
	ExtremeSwitching 5320 48T/P , 5320-24T-24S-4XE-XT	12,000
	ExtremeSwitching 5320 16P, 24T/P	8,000
	ExtremeSwitching 5320-24T-4X-XT	900
	ExtremeSwitching 5720-MW (with ALPM enabled)	163,000
	ExtremeSwitching 5720-MXW (with ALPM enabled)	288,000
	ExtremeSwitching 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 7: 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.	ExtremeSwitching 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.	ExtremeSwitching 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.	ExtremeSwitching 5320 48T/P, 5320-24T-24S-4XE-XT , 5420, 5520, 5720-MW	6,000
	ExtremeSwitching 5720-MW (with ALPM enabled)	107,000
	ExtremeSwitching 5720-MXW, Extreme Networks 7520, 7720	10,000
	ExtremeSwitching 5720-MXW (with ALPM enabled)	213,000
	ExtremeSwitching 5520 (with ALPM enabled)	40,000
	ExtremeSwitching 5320 16P, 24T/P	4,000
	ExtremeSwitching 5320-24T-4X-XT	400
BGPv6 (non-unique routes) — maximum number of nonunique BGP routes.	ExtremeSwitching 5420, 5520, 5720-MW	18,000
	ExtremeSwitching 5720-MXW, Extreme Networks 7520, 7720	30,000
	ExtremeSwitching 5320	14,000
	ExtremeSwitching 5320 16P, 24T/P	12,000
	ExtremeSwitching 5320-24T-4X-XT	1,200
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

Table 7: Supported Limits for the Base License (continued)

Metric	Product	Limit
BOOTP/DHCP relay—maximum number of DHCPv4/v6 relay agents	All platforms	4,000
Connectivity fault management (CFM)—maximum number or 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 5320, 5420, 5720, Extreme 7520, 7720 ExtremeSwitching 5520	8,192 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, ExtremeSwitching 5320, 5420, 5520, 5720 Extreme 7520, 7720	2,050 2,048

Table 7: 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.	Extreme 7520, 7720 ExtremeSwitching 5720 ExtremeSwitching 5320-24T/P, 5320-16P ExtremeSwitching 5320-48T/P, 5420, 5520	4 128 32 64
EAPSv1 protected VLANs—maximum number of protected VLANs.	ExtremeSwitching 5320-24T/P, 5320-16P ExtremeSwitching 5320-48T/P, 5420, 5520, 5720, Extreme 7520, 7720	1,000 2,000
EAPSv2 protected VLANs—maximum number of protected VLANs.	ExtremeSwitching 5320, 5420, 5520 ExtremeSwitching 5720, Extreme 7520, 7720	500 2,000
ELSM (vlan-ports)—maximum number of VLAN ports.	4120, 4220, ExtremeSwitching 5320-24T/P, 5320-16P ExtremeSwitching 5320-48T/P, 5420, 5520, 5720, Extreme 7520, 7720	4,000 5,000
ERPS domains—maximum number of ERPS domains with or without CFM configured.	All platforms except 4120 and 4220.	32
ERPSv1 protected VLANs—maximum number of protected VLANs.	ExtremeSwitching 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.	ExtremeSwitching 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.	All platforms except 4120 and 4220.	64
ESRP L2 VLANs—maximum number of ESRP VLANs without an IP address configured.	All platforms except 4120 and 4220.	1,000

Table 7: 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
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
maximum BPEs—maximum number of attached bridge port extenders (BPEs).	ExtremeSwitching 5520, 7520-48Y	48
	ExtremeSwitching 5420	20
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
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)
maximum ring BPEs—maximum number of bridge port extenders (BPEs) in a ring topology.	ExtremeSwitching 5420, 5520, 7520-48Y	8
maximum VLANs—maximum number of VLANs - Includes all VLANs	ExtremeSwitching 5520, 7520-48Y	4,094
	ExtremeSwitching 5420	1,024
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

Table 7: Supported Limits for the Base License (continued)

Metric	Product	Limit
Forwarding rate—maximum L3 software forwarding rate.	4220	9.274
	4120	12,624
	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
	Extreme 7520, 7720	34,813 pps
FDB (unicast blackhole entries)—maximum number of unicast blackhole FDB entries.	4120	16,384
	4220, ExtremeSwitching 5320	32,000
	ExtremeSwitching 5420M	65,536
	ExtremeSwitching 5420F	32,768 Notes for Limits Tables on page 88
	ExtremeSwitching 5520	114,688 Notes for Limits Tables on page 88
	ExtremeSwitching 5720-MW	163,840Notes for Limits Tables on page 88
	ExtremeSwitching 5720-MXW, Extreme 7520, 7720	294,912Notes for Limits Tables on page 88
FDB (multicast blackhole entries)—maximum number of multicast blackhole FDB entries.	ExtremeSwitching 5520, 5720-MW, Extreme 7520, 7720	4,096
	ExtremeSwitching 5420	1,024
	4120, 4220, ExtremeSwitching 5320	1,000
	ExtremeSwitching 5720-MXW	16,000

Table 7: Supported Limits for the Base License (continued)

Metric	Product	Limit
FDB (maximum L2 entries)—maximum number of MAC addresses.	4120	16,384
	4220, ExtremeSwitching 5320	32,000
	ExtremeSwitching 5420M	65,536
	ExtremeSwitching 5420F	32,768 Notes for Limits Tables on page 88
	ExtremeSwitching 5520	114,688 Notes for Limits Tables on page 88
	ExtremeSwitching 5720-MW	163,840Notes for Limits Tables on page 88
	ExtremeSwitching 5720-MXW, Extreme 7520, 7720	294,912Notes for Limits Tables on page 88
FDB (maximum L2 entries)—maximum number of multicast FDB entries.	ExtremeSwitching 5520, Extreme 7520, 7720	4,096
	4120, 4220, ExtremeSwitching 5320, 5420	1,024
	ExtremeSwitching 5720	16,000
GRE Tunnels—maximum number of GRE tunnels.	All platforms	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

Table 7: Supported Limits for the Base License (continued)

Metric	Product	Limit
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
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 4220, ExtremeSwitching 5320-24T-4X-XT 4120	1,500 500 48

Table 7: Supported Limits for the Base License (continued)

Metric	Product	Limit
IGMPv1/v2 SSM-map entries—maximum number of IGMPv1/v2 SSM mapping entries.	All platforms except 4120 and 4220.	6
IGMPv1/v2 SSM-map entries—maximum number of sources per group in IGMPv1/v2 SSM mapping entries.	All platforms except 4120 and 4220.	50
IGMPv2 subscriber—maximum number of IGMPv2 subscribers per port.Notes for Limits Tables on page 88	ExtremeSwitching 5320 (except 5320-24T-4X-XT), 5420, Extreme Networks 7520, 7720 ,ExtremeSwitching 5720,ExtremeSwitching 5520	4,000
	4220, ExtremeSwitching 5320-24T-4X-XT	1,000
	4120	250
IGMPv2 subscriber—maximum number of IGMPv2 subscribers per switch.Notes for Limits Tables on page 88	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, ExtremeSwitching 5320-24T-4X-XT	1,000
	4120	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.Notes for Limits Tables on page 88	ExtremeSwitching 5320 (except 5320-24T-4X-XT), 5420, 5520, 5720, Extreme 7520, 7720 4220, ExtremeSwitching 5320-24T-4X-XT 4120	4,000 1,000 250
IGMPv3 subscriber—maximum number of IGMPv3 subscribers per switch.Notes for Limits Tables on page 88	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, ExtremeSwitching 5320-24T-4X-XT	1,000
	4120	256

Table 7: Supported Limits for the Base License (continued)

Metric	Product	Limit
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	4,000
	ExtremeSwitching 5420F models	12,000
	ExtremeSwitching 5420M models	24,000
	ExtremeSwitching 5320, 5520	74,750 Notes for Limits Tables on page 88
	ExtremeSwitching 5720-MW	100,000
	Extreme 7520, 7720	184,318 (up to)
	ExtremeSwitching 5720-MXW	221,000
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	397
	4220	4,000
	ExtremeSwitching 5320	12,000
	ExtremeSwitching 5420M models	24,000
	ExtremeSwitching 5420F models	12,000
	ExtremeSwitching 5520	60,000 Notes for Limits Tables on page 88
	ExtremeSwitching 5720-MW	80,000 Notes for Limits Tables on page 88
	Extreme 7520, 7720	146,000 Notes for Limits Tables on page 88
	ExtremeSwitching 5720-MXW	172,000 Notes for Limits Tables on page 88

Table 7: Supported Limits for the Base License (continued)

Metric	Product	Limit
IPv4 ARP entries in hardware with maximum LPM routes—maximum recommended number of IPv4 ARP entries in hardware, with maximum LPM routes present. Assumes number of IP route reserved entries is "maximum."	4120	384
	4220	3,000
	ExtremeSwitching 5320	10,000
	ExtremeSwitching 5420M models	21,000
	ExtremeSwitching 5420F models	10,000
	ExtremeSwitching 5520	49,000 Notes for Limits Tables on page 88
	ExtremeSwitching 5720-MW	70,000 Notes for Limits Tables on page 88
	Extreme 7520, 7720	125,000 Notes for Limits Tables on page 88
	ExtremeSwitching 5720-MXW	156,000 Notes for Limits Tables on page 88
IP flow information export (IPFIX)—number of simultaneous flows.	4120, 4220, ExtremeSwitching 5320	N/A
	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 7: 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	450
	4220	4,000
	ExtremeSwitching 5320	20,000
	ExtremeSwitching 5320-24T/P, 5320-16P	24,000
	ExtremeSwitching 5420M	36,000
	ExtremeSwitching 5420F	24,000 Notes for Limits Tables on page 88
	ExtremeSwitching 5520	102,000 Notes for Limits Tables on page 88
	ExtremeSwitching 5720-MW	139,000 Notes for Limits Tables on page 88
	Extreme 7520, 7720	241,000 (up to) Notes for Limits Tables on page 88
	ExtremeSwitching 5720-MXW (with ALPM enabled)	245,000 Notes for Limits Tables on page 88
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, ExtremeSwitching 5320, 5420	25,000
	ExtremeSwitching 5720-MW	163,000
	ExtremeSwitching 5720-MXW	288,000
	Extreme 7520, 7720	350,000

Table 7: Supported Limits for the Base License (continued)

Metric	Product	Limit
IPv4 routes (LPM entries in hardware)— number of IPv4 routes in hardware.	4120	64
	4220	992
	ExtremeSwitching 5320-16T/P, 5320-24T/P	8,000
	ExtremeSwitching 5320-48T/P, 5420	12,000
	ExtremeSwitching 5520	81,000 Notes for Limits Tables on page 88
	ExtremeSwitching 5720-MW	163,000Notes for Limits Tables on page 88
	Extreme 7520, 7720	262,000 up to 350,000Notes for Limits Tables on page 88
	ExtremeSwitching 5720-MXW	288,000Notes for Limits Tables on page 88
IPv6 6in4 tunnel—maximum number of IPv6 6in4 tunnels.	All platforms except 4120 and 4220	255
IPv6 6to4 tunnel—maximum number of IPv6 6to4 tunnels.	All platforms except 4120 and 4220	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 7: Supported Limits for the Base License (continued)

Metric	Product	Limit
IPv6 host entries in hardware—maximum number of IPv6 neighbor entries in hardware.	4120	200
	4220	2,000
	ExtremeSwitching 5320	6,000
	ExtremeSwitching 5420M models	12,000
	ExtremeSwitching 5420F models	6,000
	ExtremeSwitching 5520	18,000 Notes for Limits Tables on page 88
	ExtremeSwitching 5720-MW	24,000 Notes for Limits Tables on page 88
	Extreme 7520, 7720	57,000 Notes for Limits Tables on page 88
	ExtremeSwitching 5720-MXW	78,000 Notes for Limits Tables on page 88
IPv6 routes in software—maximum number of IPv6 routes in software, including static routes and routes from all routing protocols.	ExtremeSwitching 5520	18,000 Notes for Limits Tables on page 88
	4120, 4220, ExtremeSwitching 5320, 5420	25,000
	ExtremeSwitching 5720-MW	07,000 Notes for Limits Tables on page 88
	Extreme 7520, 7720	1196,000 Notes for Limits Tables on page 88
	ExtremeSwitching 5720-MXW	213,000 Notes for Limits Tables on page 88

Table 7: Supported Limits for the Base License (continued)

Metric	Product	Limit
IPv6 routes (LPM entries in hardware)—maximum number of IPv6 routes in hardware.	4120	32
	4220	512
	ExtremeSwitching 5520	40,000 Notes for Limits Tables on page 88
	ExtremeSwitching 5420	6,000
	ExtremeSwitching 5720-MW	107,000 Notes for Limits Tables on page 88
	Extreme 7520, 7720	131,000 up to 196,000 Notes for Limits Tables on page 88
	ExtremeSwitching 5720-MXW	213,000 Notes for Limits Tables on page 88
IPv6 routes with a mask greater than 64 bits in hardware—maximum number of such IPv6 LPM routes in hardware.	ExtremeSwitching 5320, 5420	256
	ExtremeSwitching 5520 Extreme 7520, 7720	8,192 Notes for Limits Tables on page 88 32,000Notes for Limits Tables on page 88
	ExtremeSwitching 5720-MW	16,000 Notes for Limits Tables on page 88
	ExtremeSwitching 5720-MXW	24,000 Notes for Limits Tables on page 88

Table 7: Supported Limits for the Base License (continued)

Metric	Product	Limit
IPv6 route sharing in hardware—route mask lengths for which ECMP is supported in hardware.	4120, 4220, ExtremeSwitching 5320, 5420	0–64, >64 single path only
	ExtremeSwitching 5520, 5720, Extreme 7520, 7720	0–128 Notes for Limits Tables on page 88
IP router interfaces—maximum number of VLANs performing IPv4 and/or IPv6 routing. Excludes sub-VLANs.	4120 ExtremeSwitching 5320-48T/P, 5420	126 1,533
	4220, ExtremeSwitching 5320-24T/P, 5320-16P	509
	ExtremeSwitching 5520, 5720, Extreme 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, ExtremeSwitching 5320, 5420, 5520	2, 4, or 8
	ExtremeSwitching 5720, Extreme 7520, 7720	2, 4, 8, 16, 32, or 64

Table 7: 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	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 7: Supported Limits for the Base License (continued)

Metric	Product	Limit
	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.	
	Extreme 7520, 7720 if maximum gateways is 2 if maximum gateways is 4 if maximum gateways is 8 if maximum gateways is 16 (default) if maximum gateways is 32 if maximum gateways is 64 **Note:** The values here represent the maximum attainable ECMP groups of which, due to the RIOT feature, half are reserved for overlay and half for underlay routing.	4,094 4,094 2,046 1,022 510 254
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
Layer-2 IPMC forwarding caches—(IGMP/MLD/PIM snooping) in mac-vlan mode. **Note:** • The internal lookup table configuration used is "l2-and-l3". • IPv6 and IPv4 L2 IPMC scaling is the same for this mode. • Layer-2 IPMC forwarding cache limits—(IGMP/MLD/PIM snooping) in mixed-mode are the same. 4120 and 4220 do not support PIM snooping.	4120	16,000
	4220, ExtremeSwitching 5320	32,000
	ExtremeSwitching 5420	64,000

Table 7: Supported Limits for the Base License (continued)

Metric	Product	Limit
	ExtremeSwitching 5520	32,768
	ExtremeSwitching 5720-MW	49,152
	Extreme 7520, 7720	73,000
	ExtremeSwitching 5720-MXW	81,920
Layer-3 IPv4 Multicast—maximum number of <S,G,V> entries installed in the hardware (IP multicast compression enabled). Note: • Limit value is the same for MVR senders, PIM Snooping entries. PIM SSM cache, IGMP senders, PIM cache. • Assumes source-group-vlan mode as look up key. • Layer 3 IPMC cache limit in mixed mode also has the same value.	4120	256
	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
	ExtremeSwitching 5320-24T-4X-XT	2000
Layer-3 IPv6 Multicast—maximum number of <S,G,V> entries installed in the hardware (IP multicast compression enabled).	4120	128

Table 7: Supported Limits for the Base License (continued)

Metric	Product	Limit
Note: • Limit value is the same for MLD sender per switch, PIM IPv6 cache. • Assumes source-group-vlan mode as lookup key.	4220	1,000
4120 and 4220 do not support PIM snooping, but MLD cache is supported in the hardware.	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
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, ExtremeSwitching 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

Table 7: Supported Limits for the Base License (continued)

Metric	Product	Limit
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. 4120	4 total, 2 egress 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
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.	ExtremeSwitching 5320 ExtremeSwitching 5720 ExtremeSwitching 5420, 5520	55 63 59

Table 7: Supported Limits for the Base License (continued)

Metric	Product	Limit
	Extreme 7520, 7720	61
	Stacking **Note:** Maximum user ports	1
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.	ExtremeSwitching 5320 (except 5320-24T-4X-XT), 5420, 5520, 5720, Extreme 7520, 7720	1,500
	4220, ExtremeSwitching 5320-24T-4X-XT	250
	4120	32
Multicast listener discovery (MLD)v1 subscribers—maximum number of MLDv1 subscribers per port.Notes for Limits Tables on page 88	ExtremeSwitching 5320 (except 5320-24T-4X-XT), 5420, 5520, 5720, Extreme 7520, 7720	4,000
	4220, ExtremeSwitching 5320-24T-4X-XT	1,000
	4120	128
Multicast listener discovery (MLD)v1 subscribers—maximum number of MLDv1 subscribers per switch.Notes for Limits Tables on page 88	ExtremeSwitching 5320 (except 5320-24T-4X-XT), 5420, 5520	10,000
	ExtremeSwitching 5720-MW	30,000
	Extreme 7520, 7720	45,000
	ExtremeSwitching 5720-MXW	54,000
	4220, ExtremeSwitching 5320-24T-4X-XT	1,000
	4120	256
Multicast listener discovery (MLD)v2 subscribers—maximum number of MLDv2 subscribers per port.Notes for Limits Tables on page 88	ExtremeSwitching 5320 (except 5320-24T-4X-XT), 5420, 5520, 5720, Extreme 7520, 7720	4,000
	4220, ExtremeSwitching 5320-24T-4X-XT	1,000
	4120	128

Table 7: Supported Limits for the Base License (continued)

Metric	Product	Limit
Multicast listener discovery (MLD)v2 subscribers—maximum number of MLDv2 subscribers per switch.Notes for Limits Tables on page 88	4120, 4220, ExtremeSwitching 5320 (except 5320-24T-4X-XT), 5420, 5520	10,000
	ExtremeSwitching 5720-MW	30,000
	Extreme 7520, 7720	45,000
	ExtremeSwitching 5720-MXW	54,000
	4220, ExtremeSwitching 5320-24T-4X-XT	1,000
	4120	256
Multicast listener discovery (MLD)v2 maximum source per group—maximum number of source addresses per group.	All platforms	200
Multicast listener discovery (MLD) SSM-map entries—maximum number of MLD SSM mapping entries.	All platforms except 4120 and 4220.	500
Multicast listener discovery (MLD) SSM-MAP entries—maximum number of sources per group in MLD SSM mapping entries.	All platforms except 4120 and 4220.	50
Network Address Translation (NAT) VLANs—maximum number of NAT VLANs.	Extreme 7520, 7720	4
Network Address Translation (NAT) Sessions—number of NAT sessions supported (non twice-NAT).	Extreme 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
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

Table 7: Supported Limits for the Base License (continued)

Metric	Product	Limit
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 7: Supported Limits for the Base License (continued)

Metric	Product	Limit
ONEPolicy Rules per Role/ Profile—maximum number of rules per role/policy.	ExtremeSwitching 5320-24T-4X-XT	IPv4 Rules: 256 IPv6 Rules: 0 MAC Rules: 0 L2 Rules: 184
	4120	IPv4:128 L2:56
	4220	IPv4:256 L2:184
	ExtremeSwitching 5320	IPv4 Rules: 1,024 IPv6 Rules: 0 MAC Rules: 0 L2 Rules: 952
	ExtremeSwitching 5420-F, 5320-24T-24S-4XE-XT Extreme 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 7: 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	1,024
	ExtremeSwitching 5320-24T-4X-XT	128
	ExtremeSwitching 5320, 5420, Extreme 7520, 7720	512
	4120, 4220,	256
	Stacking	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	1,536–65,534
	Extreme 7520, 7720	24,576
	ExtremeSwitching 5320-24T-4X-XT	384
	4120, 4220, ExtremeSwitching 5320, 5420	768
	ExtremeSwitching 5720	12,288
	ExtremeSwitching 5520	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	384
	4120, 4220, ExtremeSwitching 5320, 5420	768
	Extreme 7520, 7720	24,576
	ExtremeSwitching 5720	12,288
	ExtremeSwitching 5520	9,216

Table 7: Supported Limits for the Base License (continued)

Metric	Product	Limit
ONEPolicy Authenticated Users per Port per Switch — maximum number of authenticated users per port with only with TCI-Overwrite enabled.	4120	184
	4220	440
	ExtremeSwitching 5320, 5420, Extreme 7520, 7720	512
	ExtremeSwitching 5520, 5720	1,024
ONEPolicy Permit/Deny Traffic Classification Rules Types—total maximum number of unique permit/deny traffic classification rules types (system/stack).	ExtremeSwitching 5320, 5420-F, Extreme 7520, 7720	1,976
	ExtremeSwitching 5720-MW	6,072
	ExtremeSwitching 5720-MXW	8,120
	ExtremeSwitching 5420-M, 5520	4,024
	ExtremeSwitching 5320-24T-24S-4XE-XT	512
	4220	440
	4120	164
	ExtremeSwitching 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).	ExtremeSwitching 5420-M, 5520	1,024
	ExtremeSwitching 5420-F, 5320-24T-24S-4XE-XT Extreme 7520, 7720	512
	ExtremeSwitching 5720-MW	1,536
	ExtremeSwitching 5720-MXW	2,048
	4120, 4220, ExtremeSwitching 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 Extreme 7520, 7720	512
	ExtremeSwitching 5720-MW	1,536
	ExtremeSwitching 5720-MXW	2,048
	4120, 4220, ExtremeSwitching 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
	ExtremeSwitching 5320, 5420-F, 5520	1,024
	ExtremeSwitching 5720-MW	1,536
	ExtremeSwitching 5720-MXW	2,048
	ExtremeSwitching 5420-M, 5320-24T-24S-4XE-XT Extreme 7520, 7720	512
	4220	256
	4120	128

Table 7: Supported Limits for the Base License (continued)

Metric	Product	Limit
ONEPolicy Permit/Deny Traffic Classification Rules Types—maximum number of unique Layer 2 permit/ deny traffic classification rules (ethertype/port).	ExtremeSwitching 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, Extreme 7520, 7720	440
	4220, ExtremeSwitching 5320-24T-4X-XT	184
	4120	56
OnePolicy Maximum number of rules supported in AccessList mode—maximum number of rules in AcessList mode.	Extreme 7520, 7720	3,512
	4120	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.	ExtremeSwitching 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
	ExtremeSwitching 5720, Extreme 7520, 7720	10,000
	ExtremeSwitching 5320 (except 5320-24T-4X-XT), 5420	4,000
	ExtremeSwitching 5320-24T-4X-XT	500
OSPFv2 inter- or intra-area routes—recommended maximum number of inter- or intra-area routes contained in an OSPF LSDB with one ABR in OSPF domain.	ExtremeSwitching 5520, 5720-MXW, Extreme 7520, 7720	2,000
	ExtremeSwitching 5320 (except 5320-24T-4X-XT), 5420 ExtremeSwitching 5320-24T-4X-XT	1,600 500
OSPFv2 inter-vr or leaking routes—recommended maximum number of inter-vr routes contained in an OSPF LSDB.	ExtremeSwitching 5420, 5520, 5720, Extreme 7520, 7720	2,000
	ExtremeSwitching 5320 (except 5320-24T-4X-XT) ExtremeSwitching 5320-24T-4X-XT)	1,600 500

Table 7: Supported Limits for the Base License (continued)

Metric	Product	Limit
OSPFv2 interfaces—recommended maximum number of OSPF interfaces on a switch (active interfaces only).	All platforms except 4120 and 4220.	4
OSPFv2 links—maximum number of links in the router LSA.	ExtremeSwitching 5520, 5720, Extreme 7520, 7720 ExtremeSwitching 5320, 5420	400 320
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 ExtremeSwitching 5720, Extreme 7520, 7720 ExtremeSwitching 5320, 5420	50 100 40
OSPFv2 virtual links—maximum number of supported OSPF virtual links.	ExtremeSwitching 5520, 5720, Extreme 7520, 7720 ExtremeSwitching 5320, 5420	32 25
OSPFv3 areas—as an ABR, the maximum number of supported OSPFv3 areas.	ExtremeSwitching 5520 ExtremeSwitching 5720, Extreme 7520, 7720 ExtremeSwitching 5320, 5420	16 100 12
OSPFv3 external routes—recommended maximum number of external routes.	ExtremeSwitching 5520, 5720-MXW, Extreme 7520, 7720 ExtremeSwitching 5320 (except 5320-24T-4X-XT), 5720-MW ExtremeSwitching 5420 ExtremeSwitching 5320-24T-4X-XT	10,000 7,500 6,000 300
OSPFv3 inter- or intra-area routes—recommended maximum number of inter- or intra-area routes.	ExtremeSwitching 5520 ExtremeSwitching 5320 (except 5320-24T-4X-XT), 5720, Extreme 7520, 7720 ExtremeSwitching 5420 ExtremeSwitching 5320-24T-4X-XT	3,000 4,000 6,000 300
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

Table 7: Supported Limits for the Base License (continued)

Metric	Product	Limit
OSPFv3 virtual links—maximum number of OSPFv3 virtual links supported.	ExtremeSwitching 5520, 5720, Extreme 7520, 7720 ExtremeSwitching 5320, 5420	16 12
PIM IPv4 (maximum interfaces)—maximum number of PIM active interfaces.	All platforms except 4120 and 4220.	N/A
PIM IPv4 Limits—maximum number of multicast groups per dynamic rendezvous point.	All platforms except 4120 and 4220.	180
PIM IPv4 Limits—maximum number of multicast groups per static rendezvous point.	All platforms except 4120 and 4220.	180
PIM IPv4 Limits—maximum number of multicast sources per group.	All platforms except 4120, 4220, ExtremeSwitching 5320 24T XT, 5520, 5720-MXW, Extreme Networks 7520, and 7720. ExtremeSwitching 5320 24T XT	5,000 2,000
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 ExtremeSwitching 5320 24T XT, 5520, 5720-MXW, Extreme Networks 7520, and 7720. ExtremeSwitching 5320 24T XT	1,750 1,000
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.	3,000 (depends on policy file limits)
PIM IPv6 Limits—maximum number of dynamic rendezvous points per multicast group.	All platforms except 4120 and 4220.	64

Table 7: Supported Limits for the Base License (continued)

Metric	Product	Limit
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	256Notes for Limits Tables on page 88
Policy-based routing (PBR) redundancy—maximum number of next hops per each flow-direct.	All platforms	32Notes for Limits Tables on page 88
Port-specific VLAN tags—maximum number of port-specific VLAN tags.	ExtremeSwitching 5320, 5420 ExtremeSwitching 5520, 5720, Extreme 7520, 7720	N/A 1,023
Port-specific VLAN tags—maximum number of port-specific VLAN tag ports.	ExtremeSwitching 5320, 5420 ExtremeSwitching 5520, 5720, Extreme 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, ExtremeSwitching 5320, 5420, 5520, 5720 Extreme 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 5320, 5420, 5520, 5720 Extreme 7520, 7720	960 1,024
Private VLANs—maximum number of private VLANs in an L2-only environment.	4120, 4220, ExtremeSwitching 5320, 5420, 5520, 5720 Extreme 7520, 7720	960 1,280
Route policies—suggested maximum number of lines in a route policy file.	All platforms	10,000

Table 7: Supported Limits for the Base License (continued)

Metric	Product	Limit
RIP Learned Routes—maximum number of RIP routes supported without aggregation.	ExrtemeSwitching 5320 48T/P, 5320 24T-24S XT, 5420, 5520, 5720, Extreme Networks 7520, 7720	10,000
	ExrtemeSwitching 5320 16P, 5320 24T/P	7000
	ExrtemeSwitching 5320-24T-4X-XT	900
RIP interfaces on a single router—recommended maximum number of RIP routed interfaces on a switch.	ExtremeSwitching 5320, 5420, 5520, 5720, Extreme Networks 7520, 7720	256
RIPng learned routes—maximum number of RIPng routes.	ExrtemeSwitching 5320 48T/P, 5320 24T-24S XT, 5420, 5520, 5720, Extreme Networks 7520, 7720	3,000
	ExrtemeSwitching 5320 16P, 5320 24T/P	2,000
	ExrtemeSwitching 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, Extreme 7520, 7720	64
	4120, 4220, 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 ÷ 256).	4120, 4220, ExtremeSwitching 5320, 5320-24T-4X-XT, 5320-24T-24S-4XE-XT, 5420, 5520, 5720	128
	Extreme 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, Extreme 7520, 7720	64
	4120, 4220, ExtremeSwitching 5320-24T/P, 5320-16P, 5320-24T-4X-XT	32

Table 7: Supported Limits for the Base License (continued)

Metric	Product	Limit
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, Extreme 7520, 7720 4120, 4220, ExtremeSwitching 5320-24T/P, 5320-16P; 5320-24T-4X-XT, 5320-24T-24S-4XE-XT	600 256
Spanning Tree—maximum number of VLANs on all MSTP instances.	ExtremeSwitching 5320-48T/P, 5320-24T-24S-4XE-XT, 5420, 5520, 5720, Extreme 7520, 7720 4120, 4220, ExtremeSwitching 5320-24T/P, 5320-16P, 5320-24T-4X-XT	1,024 512
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.	ExtremeSwitching 5320-48T/P, 5420, 5520, 5720, Extreme 7520, 7720 4120, 4220, ExtremeSwitching 5320-24T/P, 5320-16P	4,096 2,048
Spanning Tree (maximum VLANs)—maximum number of STP-protected VLANs (dot1d and dot1w).	ExtremeSwitching 5320-48T/P, 5320-24T-24S-4XE-XT, 5420, 5520, 5720, Extreme 7520, 7720 4120, 4220, 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

Table 7: Supported Limits for the Base License (continued)

Metric	Product	Limit
Virtual routers—maximum number of user-created virtual routers that can be created on a switch.	ExtremeSwitching 5320-48T/P, 5420, 5520, 5720, Extreme 7520, 7720	63
	4120, 4220, ExtremeSwitching 5320-24T/P, 5320-16P	16 (local-only VRs)
Virtual router forwarding (VRFs)—maximum number of VRFs that can be created on a switch. **Note:** * Subject to other system limitations.	ExtremeSwitching 5320-48T/P, 5420, 5520, 5720, Extreme 7520, 7720	960 *
	4120, 4220, ExtremeSwitching 5320-24T/P, 5320-16P	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	8
	4120, 4220, ExtremeSwitching 5320-24T/P, 5320-16P	N/A
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 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.	ExtremeSwitching 5320-48T/P, 5420	1,533
	4120	126
	4220, ExtremeSwitching 5320-24T/P, 5320-16P	509
	ExtremeSwitching 5520, 5720, Extreme 7520, 7720	2,048

Table 7: Supported Limits for the Base License (continued)

Metric	Product	Limit
VLAN Port Interfaces (VPIF)—maximum number of VLAN port interfaces.	ExtremeSwitching 5320	40,000
	ExtremeSwitching 5420	60,000
	4120, 4220	65,549
	ExtremeSwitching 5520, 5720, Extreme 7520, 7720	131,585
VLANs (maximum active port-based)—maximum active ports per VLAN when 4,094 VLANs are configured with the default license.	ExtremeSwitching 5520, 5720, Extreme 7520, 7720	32
	4120, 4220	15
	ExtremeSwitching 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, ExtremeSwitching 5320, 5420, 5520, 5720	36
	Extreme 7520, 7720	71
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, ExtremeSwitching 5320, 5420, 5520, 5720	960
	Extreme 7520, 7720	1,024
VLAN translation—maximum number of translation VLAN pairs in an L2-only environment.	4120, 4220, ExtremeSwitching 5320, 5420, 5520, 5720	960
	Extreme 7520, 7720	2,046
VMAN CEP—maximum number of CVIDs. **Note:** With 75% hash table utilization.	ExtremeSwitching 5320, 5420	768
	ExtremeSwitching 5520, 5720	9,000
VRRP (v2/v3-IPv4) (maximum instances)—maximum number of VRRP instances for a single switch.	**Normal Mode (as individual VRs):**	

Table 7: Supported Limits for the Base License (continued)

Metric	Product	Limit
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.	All platforms except 4120 and 4220.	511
	Scaled Mode (with groups):	
	ExtremeSwitching 5720, Extreme 7520, 7720	2,048
	ExtremeSwitching 5320, 5420, 5520	1,000
	Sliced Mode:	
	All platforms except 4120 and 4220.	511
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 and 4220.	511
	Scaled Mode (with groups):	
	ExtremeSwitching 5720, Extreme 7520, 7720	2,048
	ExtremeSwitching 5320, 5420, 5520	1,000
VRRP (v2/v3-IPv4/IPv6) (maximum VRID)—maximum number of unique VRID numbers per switch.	All platforms except 4120 and 4220.	255
VRRP (v2/v3-IPv4/IPv6) (maximum VRIDs per VLAN)—maximum number of VRIDs per VLAN.	All platforms except 4120 and 4220.	255
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)

Table 7: Supported Limits for the Base License (continued)

Metric	Product	Limit
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
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.	ExtremeSwitching 5520, 5720, Extreme 7520, 7720 4220, ExtremeSwitching 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.	ExtremeSwitching 5520, 5720, Extreme 7520, 7720 4220, ExtremeSwitching 5320, 5420	4,096 150-375

Table 7: Supported Limits for the Base License (continued)

Metric	Product	Limit
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 platforms	512
VXLAN—maximum virtual networks with dynamic learning and OSPF extensions for VXLAN	ExtremeSwitching 5520, 5720, Extreme 7520, 7720 4220, ExtremeSwitching 5320, 5420	4,000 375
VXLAN—or replicator role, maximum number of attached leafs per switch.	All 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

Table 7: Supported Limits for the Base License (continued)

Metric	Product	Limit
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.Notes for Limits Tables on page 88	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 8: 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.	ExtremeSwitching 5420, 5520, 5720, Extreme Networks 7520, 7720 ExtremeSwitching 5320	256 204
BGP (networks)—maximum number of BGP networks.	ExtremeSwitching 5420, 5520, 5720, Extreme Networks 7520, 7720 ExtremeSwitching 5320	1,024 820
BGP (peers)—maximum number of BGP peers. **Note:** With default keepalive and hold timers. **Note:** Each BGPv4/BGPv6 peer handles a maximum of 50 routes. **Note:** ECMP should not be enabled for BGP.	ExtremeSwitching 5420, 5520 ExtremeSwitching 5720, Extreme Networks 7520, 7720 ExtremeSwitching 5320	128 300 100
BGP (peer groups)—maximum number of BGP peer groups.	ExtremeSwitching 5420, 5520, 5720, Extreme Networks 7520, 7720 ExtremeSwitching 5320	64 50

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

Metric	Product	Limit
BGP (policy entries)—maximum number of BGP policy entries per route policy.	ExtremeSwitching 5420, 5520, 5720, Extreme Networks 7520, 7720	256
	ExtremeSwitching 5320	204
BGP (policy statements)—maximum number of BGP policy statements per route policy.	ExtremeSwitching 5420, 5520, 5720, Extreme Networks 7520, 7720	1,024
	ExtremeSwitching 5320	820
BGP multicast address-family routes—maximum number of multicast address-family routes.	ExtremeSwitching 5520, 5720-MXW, Extreme Networks 7520, 7720	25,000
	ExtremeSwitching 5320, 5420, 5720-MW	20,000
BGP (unicast address-family routes)—maximum number of unicast address-family routes.	ExtremeSwitching 5420, 5520, 5720-MXW, Extreme Networks 7520, 7720 (at default)	25,000
	ExtremeSwitching 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, Extreme Networks 7520, 7720	75,000
	ExtremeSwitching 5320, 5720-MW	60,000
BGP ECMP—maximum number of equal cost paths per multipath for BGP and BGPv6.	ExtremeSwitching 5320, 5420, 5520, Extreme Networks 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, Extreme Networks 7520, 7720	10,000
	ExtremeSwitching 5720-MXW (with ALPM enabled)	213,000
	ExtremeSwitching 5320	4,800
	ExtremeSwitching 5520 (with ALPM enabled)	40,000
BGPv6 (non-unique routes)—maximum number of non-unique BGP routes.	ExtremeSwitching 5420, 5520, 5720-MW	18,000
	ExtremeSwitching 5720-MXW, Extreme Networks 7520, 7720	30,000
	ExtremeSwitching 5320	14,000

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

Metric	Product	Limit
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
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 8: 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, Extreme Networks 7520, 7720 ExtremeSwitching 5320, 5420, 5720	16 N/A
L2 VPN: VPLS MAC addresses—maximum number of MAC addresses learned by a switch.	ExtremeSwitching 5520 Extreme Networks 7520, 7720 Extreme Networks 5320, 5420, 5720	64,000 140,000 N/A
L2 VPN: VPLS VPNs—maximum number of VPLS virtual private networks per switch.	ExtremeSwitching 5520, Extreme Networks 7520, 7720 ExtremeSwitching 5320, 5420, 5720	1,023 N/A
L2 VPN: VPLS peers—maximum number of VPLS peers per VPLS instance.	ExtremeSwitching 5520, Extreme Networks 7520, 7720 ExtremeSwitching 5320, 5420, 5720	64 N/A
L2 VPN: LDP pseudowires—maximum number of pseudowires per switch.	ExtremeSwitching 5520 Extreme Networks 7520, 7720 ExtremeSwitching 5320, 5420, 5720	3,500 7,000 N/A
L2 VPN: static pseudowires—maximum number of static pseudowires per switch.	ExtremeSwitching 5520 Extreme Networks 7520, 7720 ExtremeSwitching 5320, 5420, 5720	3,500 7,000 N/A

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

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

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

Metric	Product	Limit
MPLS LDP transit LSPs—maximum number of MPLS transit LSPs per switch.	ExtremeSwitching 5520	3,500
	Extreme 7520, 7720	4,000
	ExtremeSwitching 5320, 5420, 5720	N/A
MPLS LDP egress LSPs—maximum number of MPLS egress LSPs that can terminate on a switch.	ExtremeSwitching 5520	3,500
	Extreme 7520, 7720	4,000
	ExtremeSwitching 5320, 5420, 5720	N/A
MPLS static egress LSPs—maximum number of static egress LSPs.	ExtremeSwitching 5520	3,500
	Extreme 7520, 7720	8,000
	ExtremeSwitching 5320, 5420, 5720	N/A
MPLS static ingress LSPs—maximum number of static ingress LSPs.	ExtremeSwitching 5520	3,500
	Extreme 7520, 7720	4,000
	ExtremeSwitching 5320, 5420, 5720	N/A
MPLS static transit LSPs—maximum number of static transit LSPs	ExtremeSwitching 5520	3,500
	Extreme 7520, 7720	4,000
	ExtremeSwitching 5320, 5420, 5720	N/A
MSDP active peers—maximum number of active MSDP peers.	All platforms	64
MSDP SA cache entries—maximum number of entries in SA cache.	ExtremeSwitching 5320, 5420F	6,000
	ExtremeSwitching 5420M	8,000
	ExtremeSwitching 5520, 5720, Extreme Networks 7520, 7720	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.	ExtremeSwitching 5320, 5420, 5520	8
	ExtremeSwitching 5720	64
OSPFv2 areas—as an ABR, how many OSPF areas are supported within the same switch.	All platforms	8
OSPFv2 external routes—recommended maximum number of external routes contained in an OSPF LSDB.	ExtremeSwitching 5520	5,000
	ExtremeSwitching 5720, Extreme Networks 7520, 7720	10,000
	ExtremeSwitching 5320 (except 5320-24T-4X-XT), 5420 ExtremeSwitching 5320-24T-4X-XT	4,000 400

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

Metric	Product	Limit
OSPFv2 inter- or intra-area routes—recommended maximum number of inter- or intra-area routes contained in an OSPF LSDB with one ABR in OSPF domain.	ExtremeSwitching 5520, 5720-MXW, Extreme Networks 7520, 7720 ExtremeSwitching 5320 (except 5320-24T-4X-XT), 5420 ExtremeSwitching 5320-24T-4X-XT	2,000 1,600 500
OSPFv2 inter-vr or leaking routes—recommended maximum number of inter-vr routes contained in an OSPF LSDB.	ExtremeSwitching 5420, 5520, 5720, Extreme Networks 7520, 7720 ExtremeSwitching 5320 (except 5320-24T-4X-XT) ExtremeSwitching 5320-24T-4X-XT)	2,000 1,600 500
OSPFv2 interfaces—recommended maximum number of OSPF interfaces on a switch (active interfaces only).	ExtremeSwitching 5420, 5520, 5720, Extreme Networks 7520, 7720 ExtremeSwitching 5320	400 320
OSPFv2 links—maximum number of links in the router LSA.	ExtremeSwitching 5420, 5520, 5720, Extreme Networks 7520, 7720 ExtremeSwitching 5320	400 320
OSPFv2 neighbors—maximum number of supported OSPF adjacencies.	ExtremeSwitching 5420, 5520, 5720, Extreme Networks 7520, 7720 ExtremeSwitching 5320	128 96
OSPFv2 routers in a single area—recommended maximum number of routers in a single OSPF area.	ExtremeSwitching 5420, 5520 ExtremeSwitching 5720, Extreme Networks 7520, 7720 ExtremeSwitching 5320	50 100 40
OSPFv2 virtual links—maximum number of supported OSPF virtual links.	ExtremeSwitching 5420, 5520, 5720, Extreme Networks 7520, 7720 ExtremeSwitching 5320	32 25
OSPFv3 areas—as an ABR, the maximum number of supported OSPFv3 areas.	ExtremeSwitching 5420, 5520 ExtremeSwitching 5720, Extreme Networks 7520, 7720 ExtremeSwitching 5320	16 100 12
OSPFv3 external routes—recommended maximum number of external routes.	ExtremeSwitching 5520, 5720-MXW, Extreme Networks 7520, 7720 ExtremeSwitching 5320 (except 5320-24T-4X-XT), 5720-MW ExtremeSwitching 5420 ExtremeSwitching 5320-24T-4X-XT	10,000 7,500 6,000 300

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

Metric	Product	Limit
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, Extreme Networks 7520, 7720	4,000
	ExtremeSwitching 5420 ExtremeSwitching 5320-24T-4X-XT	6,000 300
OSPFv3 interfaces—maximum number of OSPFv3 interfaces (active interfaces only).	ExtremeSwitching 5420, 5520, 5720, Extreme Networks 7520, 7720	256
	ExtremeSwitching 5320	192
OSPFv3 neighbors—maximum number of OSPFv3 neighbors.	ExtremeSwitching 5420, 5520, 5720, Extreme Networks 7520, 7720	64
	ExtremeSwitching 5320	48
OSPFv3 virtual links—maximum number of OSPFv3 virtual links supported.	ExtremeSwitching 5420, 5520, 5720, Extreme Networks 7520, 7720	16
	ExtremeSwitching 5320	12
PIM IPv4 (maximum interfaces)—maximum number of PIM active interfaces.	All platforms	255
PIM IPv4 Limits—maximum number of multicast groups per dynamic rendezvous point.	All platforms	180
PIM IPv4 Limits—maximum number of multicast groups per static rendezvous point.	All platforms	3,000 (depends on policy file limits)
PIM IPv4 Limits—maximum number of multicast sources per group.	All platforms	5,000
PIM IPv4 Limits—maximum number of dynamic rendezvous points per multicast group.	All platforms	145
PIM IPv4 Limits—static rendezvous points.	All platforms	32
PIM IPv6 (maximum interfaces)—maximum number of PIM active interfaces.	All platforms	255
PIM IPv6 Limits—maximum number of multicast sources per group.	All platforms	1,750

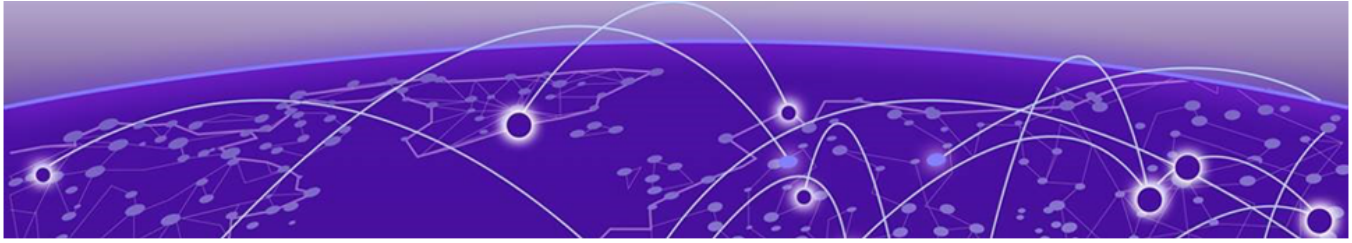
Table 8: Supported Limits for the Premier License (continued)

Metric	Product	Limit
PIM IPv6 Limits—maximum number of multicast groups per dynamic rendezvous point.	All platforms	70
PIM IPv6 Limits—maximum number of multicast groups per static rendezvous point.	All platforms	3,000 (depends on policy file limits)
PIM IPv6 Limits—maximum number of dynamic rendezvous points per multicast group.	All platforms	64
PIM IPv6 Limits—maximum number of secondary addresses per interface.	All platforms	70
PIM IPv6 Limits—static rendezvous points.	All platforms	32
PTP/1588v2 Clock Ports	7520-48Y, 7720-32C	32 for boundary clock
PTP/1588v2 Clock Instances	ExtremeSwitching 5420, 5520, 5720	1 transparent clock
	Extreme Networks 7520-48Y, 7720-32C	1 boundary clock
PTP/1588v2 Unicast Static Masters	Extreme Networks 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

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

Open Issues

There are no open issues in this version.

Known Behaviors

The following is a limitation in Switch Engine system architecture that has yet to be resolved.

Table 9: Known Issues, Platform-Specific, and Feature Change Requests (CRs) in 33.2.1

Defect Number	Description
General	
EXOS-36949	A standalone switch running previous versions cannot be cloned using version 33.2.x.
EXOS-36969	Version 33.2.1 requires ExtremeCloud IQ version 25R1 or later to connect to ExtremeCloud IQ.
EXOS-37033	The system FAN status LEDs indication might not be correct and should be disregarded for X465, X695, 5720, and 5520 switches. The correct indication is provided in the system log.
EXOS-37338	ExtremeCloud IQ configuration push of STATIC or LACP LAG over an exiting, identical dynamic LAG may fail silently. Workaround: Initiate a second configuration push to resolve the issue.

Resolved Issues in Switch Engine 33.2.1

The following issues were resolved in Switch Engine 33.2.1. Version 33.2.1 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, and 33.1.1.

Table 10: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 33.2.1

Defect Number	Description
General	
CFD-11274	Enhancement needed in the warning message that appears when port-partition setting is changed.
CFD-11506	ZTP using USB does not load port-related configuration.
CFD-11711	The amber light does not glow when a fan is removed from a stack slot.
CFD-11750	Partitioned ports are omitted in **`show access-list counters`** command output.
CFD-11756	SAN attributes cannot be added while generating an SSL CSR.
CFD-11832	When the UPM profile is associated with any UPM timer, then the successive UPM profiles are not getting listed in **`show UPM profile`** command output.
CFD-11897	Response for several CLI commands is very slow after running cablediags on stacks.
CFD-11967	SNMP user with privacy protocol AES-256 is not working after upgrading switches.
CFD-12036	Policy cannot be enabled after restart.
CFD-12096	AAA process crash occurs when pushing 64 DACLs.
CFD-12110	IPP is triggered for clients learned on a tagged VLAN.
CFD-12229	Fabric Attach Triggered Signaling doesn't work when the NSID mapping occurs dynamically.
CFD-12250	Incorrect values are returned when ipNetToPhysicalType is polled.
CFD-12281	Ports are flapping continuously after restart when auto-polarity was turned off and the peer switch port was configured with a speed of 100 Mbps.
CFD-12306	SNMP response times out when SNMP inform is generated to unreachable trap receivers.
CFD-12353	Netlogin clients are not getting authenticated into tenant VLAN if the same VLAN was added manually to the port and then removed.
CFD-12454	Traffic is briefly looped on multi-slot LAG ports when one of the slots is rebooted.
CFD-12515	UPM memory leak occurs when triggering the IPP rule.
CFD-12599	Mode button auto-stacking doesn't work.

Table 10: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 33.2.1 (continued)

Defect Number	Description
EXOS-37275	Memory is continuously depleted when DHCP snooping entries containing Option code 0 are polled using REST API.
EXOS-36858	Trunk port information is not properly displayed in the "FDB.ArpWarnPort mismatch between FDB and ARP" log message.