



Switch Engine Release Notes

Software Version 32.6.1

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November 2023



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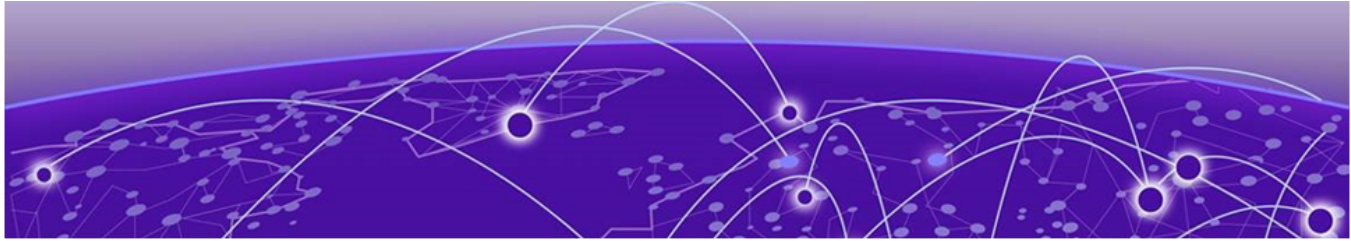
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Preface

Read the following topics to learn about:

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

Conventions

To help you better understand the information presented in this guide, the following topics describe the formatting conventions used for notes, text, and other elements.

Text Conventions

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

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

Table 1: Notes and warnings




| Icon | Notice type | Alerts you to... |
|---|-------------|--|
|  | Tip | Helpful tips and notices for using the product |
|  | Note | Useful information or instructions |
|  | Important | Important features or instructions |

Table 1: Notes and warnings (continued)



| Icon | Notice type | Alerts you to... |
|---|-------------|---|
|  | Caution | Risk of personal injury, system damage, or loss of data |
|  | Warning | Risk of severe personal injury |

Table 2: Text

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

Table 3: Command syntax

| Convention | Description |
|------------------------------------|--|
| bold text | Bold text indicates command names, keywords, and command options. |
| <i>italic text</i> | 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. |

Table 3: Command syntax (continued)

| Convention | Description |
|------------|--|
| ... | Repeat the previous element, for example, <i>member [member . . .]</i> . |
| \ | In command examples, the backslash indicates a “soft” line break. When a backslash separates two lines of a command input, enter the entire command at the prompt without the backslash. |

Platform-Dependent Conventions

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

- ExtremeSwitching® switches
- SummitStack™

When a feature or feature implementation applies to specific platforms, the specific platform is noted in the heading for the section describing that implementation in the Switch Engine command documentation (see the Extreme Documentation page at www.extremenetworks.com/documentation/). In many cases, although the command is available on all platforms, each platform uses specific keywords. These keywords specific to each platform are shown in the Syntax Description and discussed in the Usage Guidelines sections.

Terminology

When features, functionality, or operation is specific to a device family, such as ExtremeSwitching, the family name is used. Explanations about features and operations that are the same across all product families simply refer to the product as the *device*.

Send Feedback

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

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

To send feedback, email us at documentation@extremenetworks.com.

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

Help and Support

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

Extreme Portal

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

The Hub

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

Call GTAC

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

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

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

Subscribe to Product Announcements

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

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

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

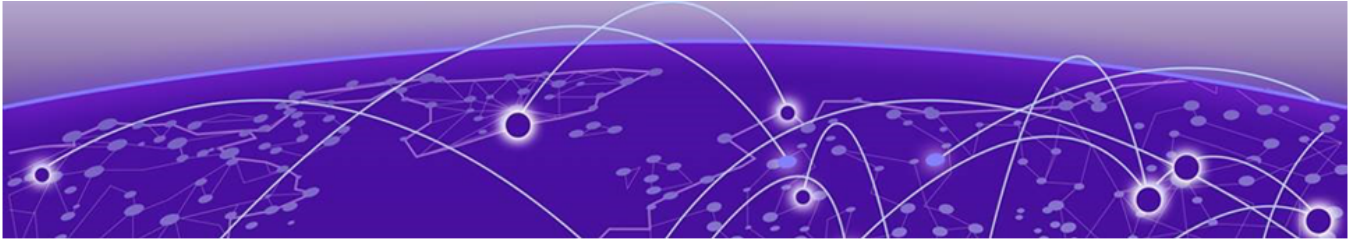
Related Publications

Switch Engine Publications

- *Switch Engine 32.6.1 Command Reference Guide*
- *Switch Engine 32.6.1 Feature License Requirements*
- *Switch Engine 32.6.1 User Guide*
- *Switch Engine 32.6.1 Release Notes*
- *Extreme Hardware/Software Compatibility and Recommendation Matrices*
- *Extreme Optics Compatibility*
- *Switch Configuration with Chalet for ExtremeXOS 21.x and Later*

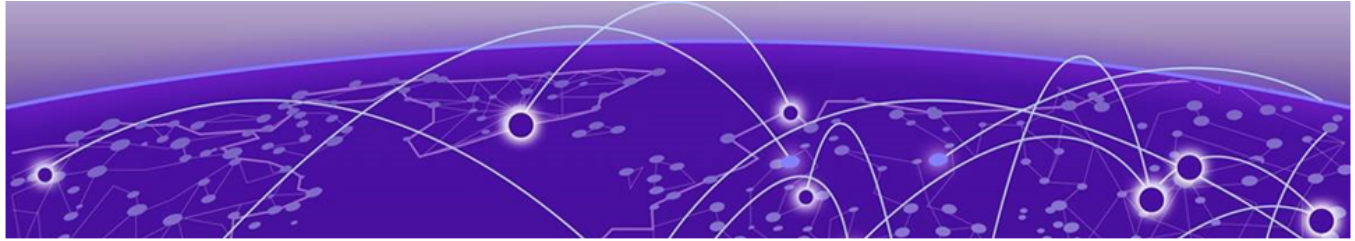
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Overview

These release notes document Switch Engine 32.6.1, which adds features and resolves software deficiencies.



New Hardware Supported in Switch Engine 32.6

The following new hardware is supported in Switch Engine 32.6.

Table 4: 5520 Series Switches

| | |
|---------------------|--|
| 5520-24T-ACDC-BASE | 24 10/100/1000BASE-T FDX/HDX MACsec capable ports, 2 stacking/QSFP28 ports, 1 unpopulated VIM slot, 3 unpopulated modular fan slots, 2 unpopulated modular PSU slots, AC or DC PSU capable |
| 5520-48T-ACDC-BASE | 48 10/100/1000BASE-T FDX/HDX MACsec capable ports, 2 stacking/QSFP28 ports, 1 unpopulated VIM slot, 3 unpopulated modular fan slots, 2 unpopulated modular PSU slots, AC or DC PSU capable |
| 5520-24X-ACDC-BASE | 24 1Gb/10Gb SFP+ ports, 2 stacking/QSFP28 ports, 1 unpopulated VIM slot, 3 unpopulated modular fan slots, 2 unpopulated modular PSU slots, AC or DC PSU capable |
| 5520-48SE-ACDC-BASE | 48 1000BASE-X SFP MACsec capable ports, 2 stacking/QSFP28 ports, 1 unpopulated VIM slot, 3 unpopulated modular fan slots, 2 unpopulated modular PSU slots, AC or DC PSU capable |

Table 5: 7520 Series Switches

| | |
|---------------|--|
| 7520-48YE-8CE | 48 10/25Gb SFP28, 8 40/100Gb QSFP28 MACsec capable ports, 6 unpopulated fan modules, 2 unpopulated PSU slots |
|---------------|--|

Dual Network Operating System Information

All Universal Hardware switches can run two different network operating systems: Switch Engine (default) or Fabric Engine. When you power up the switch for the first time, you must select an operating system.

For more information about selecting a network operating system, or changing it after initial selection, see [Changing the Network Operating System](#) on page 23.



Security Information

[Linux Kernel](#) on page 12

[OpenSSL Version](#) on page 12

The following section covers important security information for Switch Engine 32.6.1.

Linux Kernel

Switch Engine 32.6.1 uses Linux Kernel 5.10.

OpenSSL Version

Switch Engine 32.6.1 uses FIPS openssl-fips-2.0.16.



Upgrading Switch Engine

For instructions about upgrading Switch Engine software, see *Software Upgrade and Boot Options* in [Switch Engine 32.6.1 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

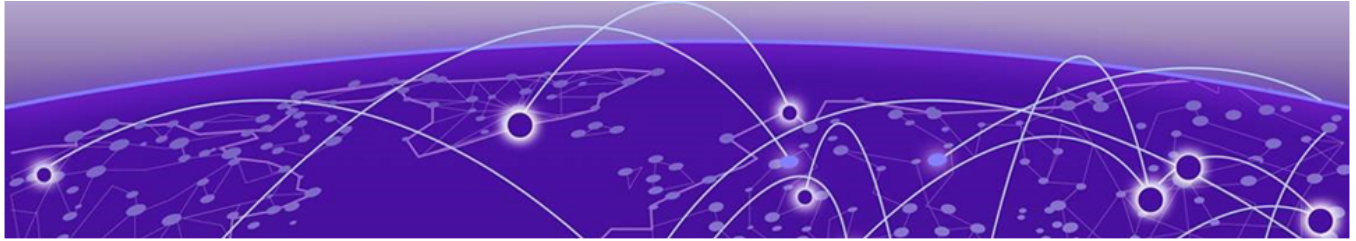
New ExtremeSwitching 5420 and 5520 PoE switches with a Giga device MCU part (switch default ships with supported Switch Engine versions from the factory) will prevent the switch downgrade to older EXOS versions and prevent operating system switchover to unsupported VOSS versions.

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 switch can be identified for the inclusion of the Giga device MCU 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 32.6.1 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 6: 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 on management port. | |
| ELRP | Disabled. | |

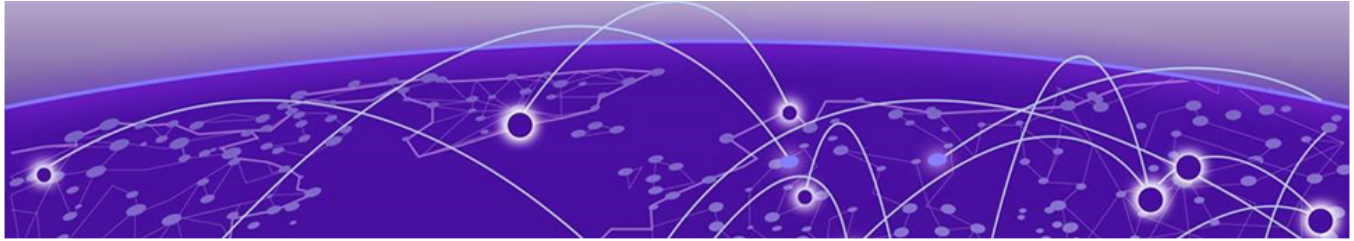
^a If you choose enhanced security mode when initially setting up the switch or after running `unconfigure switch all`.

Table 6: 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 6: 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 7: Switch Engine Image Types (Prefixes)

| Switches | Image File Type (Prefix) |
|-----------------------------------|--|
| ExtremeSwitching 5320, 5420, 5520 | summit_arm Example: summit_arm-31.1.0.3.xos |
| ExtremeSwitching 5720, 7520, 7720 | onie Example: onie-32.1.1.6.x86_64.xos |



New and Corrected Features in Switch Engine 32.6.1

- [10338 Transceiver and Port at 1000BASE-T Mode](#) on page 19
- [MDI Mode with Autopolarity Turned Off](#) on page 19
- [Extended Edge Switching Support on 7520-48Y Switches](#) on page 20
- [MACsec Support on 7520-48YE-8CE Switches](#) on page 20
- [Network Timing Protocol Support over IPv6](#) on page 20
- [Policy and VXLAN](#) on page 21
- [TACACS Support over IPv6](#) on page 21
- [Precision Time Protocol v2 Support for 5520 Switches](#) on page 22
- [5320 Series Licensing](#) on page 22

This section lists the new and corrected features supported in the 32.6.1 software:

10338 Transceiver and Port at 1000BASE-T Mode

Version 32.6.1 adds support for configuring the 10338 (10G BASE-T SFP+ 30m TAA) transceiver and corresponding switch port to run at 1000BASE-T mode where applicable.

Supported Platforms

- 5420F-24S-4XE
- 5520-48SE
- 5520-48SE-ACDC
- 5520-24X
- 5520-24X-ACDC
- 7520-48Y (QSFP28 ports need channelization with QSA adapter)
- 7720-32C

MDI Mode with Autopolarity Turned Off

Version 32.6.1 adds support for configuring Medium-Dependent Interface (MDI) mode when autopolarity is turned off. When disabling autopolarity, you have the option to set the port's polarity or MDI mode to straight-through (MDI) or crossover (MDIX) mode irrespective of the native MDI mode of the port. The autopolarity feature is enabled by default.

Supported Platforms

All platforms.

Changed CLI Commands

The following command adds the **mdi-mode** option:

```
configure ports port_list auto-polarity [on | off { mdi-mode [ default | mdi | mdix ]}]
```

Extended Edge Switching Support on 7520-48Y Switches

Version 32.6.1 adds Extended Edge Switching (VPEX) support on 7520-48Y switches.

MACsec Support on 7520-48YE-8CE Switches

Version 32.6.1 adds MACsec support on all front panel ports on 7520-48YE-8CE switches.

Network Timing Protocol Support over IPv6

Version 32.6.1 adds Network Timing Protocol (NTP) support to configure NTP servers or peers in an IPv6 address format. When enabling NTP on a VLAN, NTP is also enabled on all the global IPv6 addresses of the VLAN. This feature also supports a combination of IPv4 and IPv6 servers or peers.

Limitations

- The IPv6 address of a server received through DNS is not supported. The server's IPv6 address must be configured directly.
- Restrict list is not supported for IPv6.
- Broadcast client is not supported for IPv6.

Supported Platforms

All platforms.

Changed CLI Commands

The following commands add the *ipV6_addr* option:

```
configure ntp [server | peer] add [ip_address | ipv6_address | host_name] {key keyid} {option [burst | initial-burst]} {{vr} vr_name}

configure ntp [server | peer] delete [ip_address | ipv6_address | host_name]
```

Policy and VXLAN

Version 32.6.1 adds support for policy and VXLAN static provisioning. Virtual networks and tenant VLANs must be statically created. NetLogin and static policy profiles facilitate user authentication through RADIUS and attach the users to the appropriate VLANs that are provisioned already.

Only a limited number of users (100 or fewer) is supported. Because the maximum number of policy profiles supported is 63, this feature can be used with a maximum of 63 virtual networks.

Limitations

- Dynamic VLANs are not supported.
- Dynamic virtual networks are not supported.
- Non-policy mode is not supported.
- RIOT is not supported.
- The policy must have TCI overwrite enabled.

Supported Platforms

All platforms.

TACACS Support over IPv6

Version 32.6.1 adds support for configuring primary and secondary TACACS+ IPv6 servers as authentication, authorization, and accounting servers.

Supported Platforms

All platforms.

Changed CLI Commands

The following commands add the *host_ipv6address* and *client_ipv6address* options:

```
configure tacacs [primary | secondary] server [host_ipaddr |
host_ipV6addr | hostname] {tcp_port} client-ip [client_ipaddress |
client_ipv6address] {vr vr_name}
```

```
configure tacacs-accounting [primary | secondary] server [host_ipaddr
| host_ipV6addr | hostname] {tcp_port} client-ip [client_ipaddress |
client_ipv6address] {vr vr_name}
```

Precision Time Protocol v2 Support for 5520 Switches

Version 32.6.1 adds Precision Time Protocol v2 (PTPv2) with transparent clock only. This feature is included in the Premier License and doesn't require a separate PTP license.

Supported Platforms

ExtremeSwitching 5520 series.

New CLI Command

```
show network-clock ptp end-to-end-transparent
```

5320 Series Licensing

A license is **no longer** required operate SFP+ ports at 10 Gbps on 5320 Series switches.



Changing the Network Operating System

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

Making Your Initial Network Operating System Selection

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

- **ExtremeCloud™ IQ** (see [ExtremeCloud IQ Agent Support](#) on page 25)—You can select your network operating system when purchasing your switch, which associates the switch serial number with your desired network operating system, which then causes the desired network operating system to be loaded during ExtremeCloud onboarding. For more information about using ExtremeCloud IQ, go to <https://www.extremenetworks.com/support/documentation/extremecloud-iq/>.
- **Extreme Management Center**— see [Extreme Management Center User Guide](#)
- **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 Series uses 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 32.6.1 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

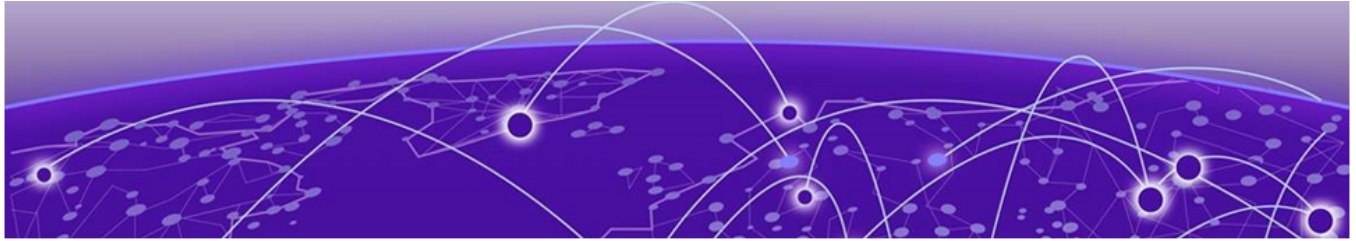
If you anticipate ever changing the operating system to Fabric Engine, and you want to statically assign IP addresses on the DHCP server, then it is recommended to assign them based on the DHCP client ID. For more information about this issue, see the [Using a BOOTP or DHCP Server](#) topic in the [Switch Engine 32.6.1 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

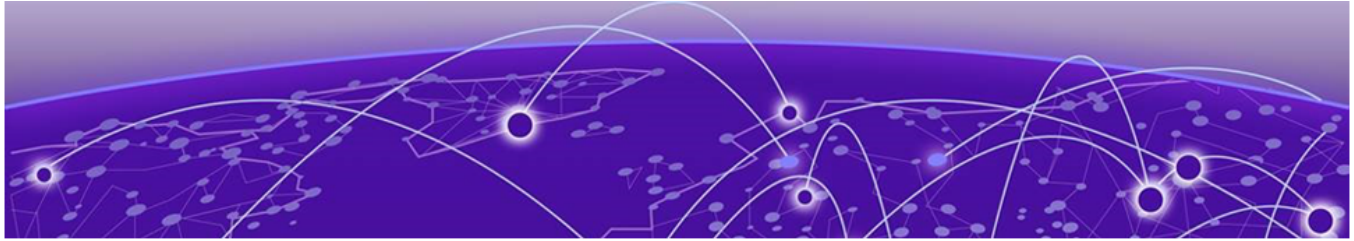
Check the ExtremeCloud IQ release notes to ensure support for your version has been added before upgrading.

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 8: Supported Platforms

| Switch Series | Switch Models |
|-----------------------|---|
| ExtremeSwitching 5320 | 5320-48T-8XE 5320-48P-8XE 5320-24T-8XE 5320-24P-8XE 5320-16P-4XE 5320-16P-4XE-DC |
| ExtremeSwitching 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 |
| ExtremeSwitching 5520 | 5520-24T 5520-24W 5520-48T 5520-48W 5520-12MW-36W 5520-24X 5520-48SE |
| ExtremeSwitching 5720 | 5720-24MW 5720-24MXW 5720-48MW 5720-48MXW |
| Extreme 7520 | 7520-48Y-8C 7520-48XT-6C 7520-48YE-8CE |
| Extreme 7720 | 7720-32C |



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 ExtremeCloud IQ - Site Engine

Switch Engine 32.6.1 is compatible with the version of ExtremeCloud IQ - Site Engine as shown in this table: http://emc.extremenetworks.com/content/common/releasenotes/extended_firmware_support.htm

Switch Engine 32.6.1 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.

The ExtremeCloud IQ – Site Engine version 22.6 and Switch Engine version 32.1 can be used to onboard and manage the 5720 product line in non-production (demo/lab only) environments. For deployment in the production environment, an upgrade is required to both the Switch Engine firmware and the ExtremeCloud IQ – Site Engine version.

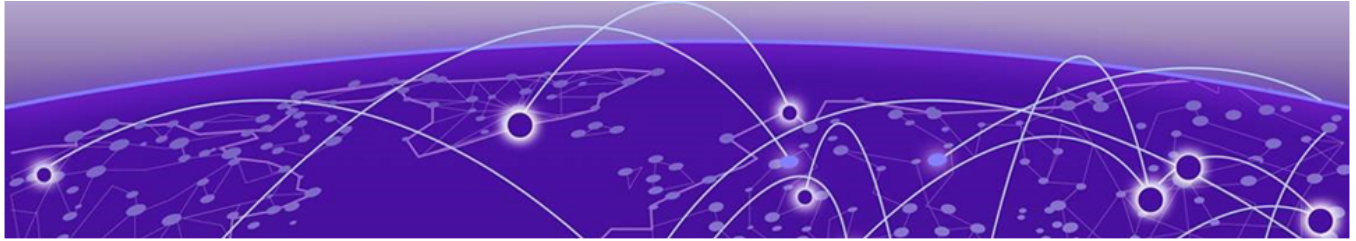


Supported MIBs

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 32.6.1 User Guide](#).



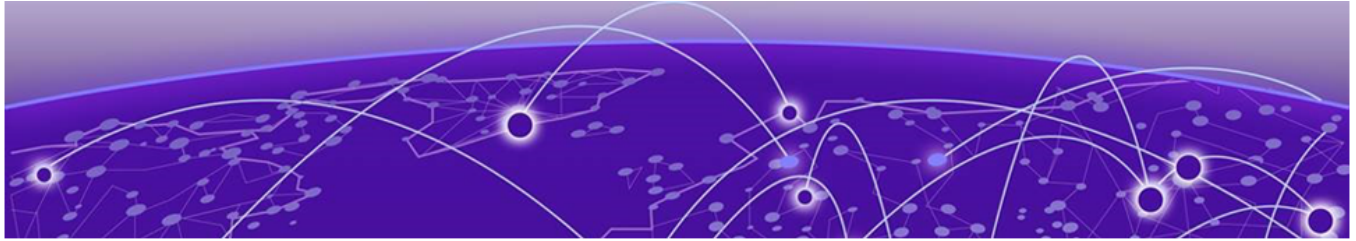
Tested Third-Party Products

The following third-party products have been tested for Switch Engine 32.6.1.

Tested RADIUS Servers

The following RADIUS servers are fully tested:

- Microsoft—Internet Authentication Server
- Meetinghouse
- FreeRADIUS



Extreme Switch Security Assessment

DoS Attack Assessment

Tools used to assess DoS attack vulnerability:

- Network Mapper (NMAP)

ICMP Attack Assessment

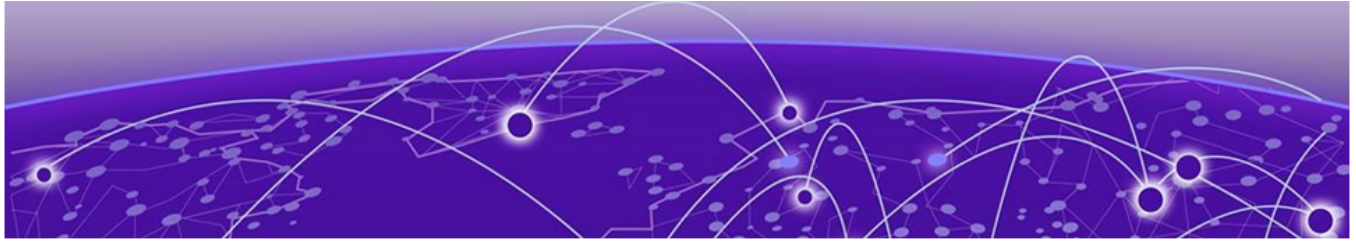
Tools used to assess ICMP attack vulnerability:

- SSPing
- Twinge
- Nuke
- WinFreeze

Port Scan Assessment

Tools used to assess port scan assessment:

- Nessus



Limits

- [Limits Overview](#) on page 32
- [Base License Limits](#) on page 34
- [Premier License Limits](#) on page 66
- [Notes for Limits Tables](#) on page 74

This chapter summarizes the supported limits in Switch Engine 32.6.1.

Limits Overview

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

- [Base License Limits](#) on page 34
- [Premier License Limits](#) on page 66

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

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

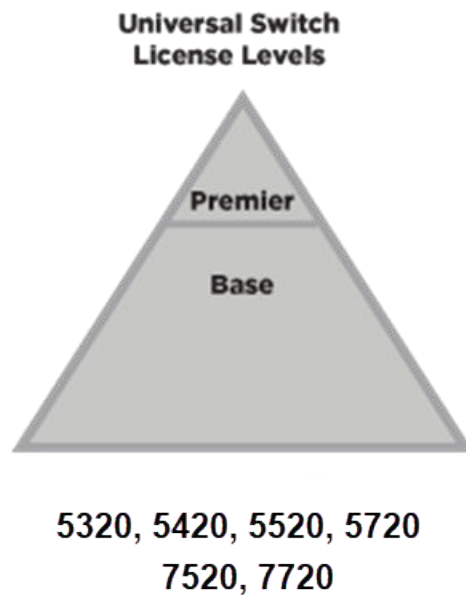


Figure 1: License Levels for Universal Switches

For more information about licenses, see [Switch Engine 32.6.1 Feature License Requirements](#).

The following tables summarize tested metrics for a variety of features, as measured in a per-system basis unless otherwise noted. These limits may change, but represent the current status. The contents of this table supersede any values mentioned in the 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 Extended Edge Switching architecture, Layer-2, Layer-3, and multicast packet forwarding and filtering operations take place on the controlling bridge. The controlling bridge switch and attached BPEs (V400 Virtual Port Extenders) constitute a single,

extended switch system. Therefore, the Extended Edge Switching system assumes the scale and limits from the specific controlling bridge model in use. For applicable limits, see the following tables for the controlling bridge you are using.

Base License Limits

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

Table 9: Supported Limits for the Base License

| Metric | Product | Limit |
|--|-----------------------------|-------------------------------------|
| Access lists (meters)— maximum number of meters. | ExtremeSwitching 5320, 5420 | 6,144 ingress 512 egress |
| | Extreme 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 9: Supported Limits for the Base License (continued)

| Metric | Product | Limit |
|---|--|--|
| Access lists (policies) — maximum number of rules in a single policy file. ^a | 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 |
| | ExtremeSwitching 5320-16P | 512 ingress only |

Table 9: 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 |
| | 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, 5420 | 1,024 |
| | ExtremeSwitching 5520, 5720 | 4,096 |
| BFD sessions (Software Mode) —maximum number of BFD sessions. | All platforms (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 (peers) —maximum number of BGP peers. | All platforms | 2 |
| BGP auto-peering —maximum number of auto-peering nodes and VTEPs. | All platforms | 64 |
| BGP auto-peering attached IPv4 hosts —maximum number of attached IPv4 hosts. | All platforms | 64,000 |

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

| Metric | Product | Limit |
|--|--|------------------|
| BGP auto-peering attached IPv6 hosts — maximum number of attached IPv6 hosts. | All platforms | 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 ExtremeSwitching 5320, 5420, 5520 | 16* 4* |
| BGP auto-peering maximum IPv4 prefixes with ECMP — Maximum number of IPv4 Network prefixes with ECMP. | ExtremeSwitching 5320, 5420, 5520, 5720 Extreme 7520, 7720 | 16,000 64,000 |
| BGP auto-peering maximum IPv6 prefixes with ECMP — Maximum number of IPv6 Network prefixes with ECMP. | ExtremeSwitching 5320, 5420, 5520, 5720 Extreme 7520, 7720 | 254 64,000 |
| BGP auto-peering MLAG peers —maximum MLAG peers per AutoBGP node. | All platforms | 1 |
| BGP auto-peering VRFs — maximum number of VRFs. | All platforms | 64 |
| BGP auto-peering EVPN instances —maximum EVPN instances. | All platforms | 1,024 |
| BOOTP/DHCP relay — maximum number of BOOTP or DHCP servers per virtual router. | All platforms | 8 |
| BOOTP/DHCP relay — maximum number of BOOTP or DHCP servers per VLAN. | All platforms | 8 |
| BOOTP/DHCP relay — maximum number of DHCPv4/v6 relay agents | All platforms | 4,000 |
| Connectivity fault management (CFM) — maximum number or CFM domains. | All platforms | 8 |
| CFM —maximum number of CFM associations. | All platforms | 256 |

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

| Metric | Product | Limit |
|---|---|---|
| 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. | ExtremeSwitching 5320, 5420, 5720, Extreme 7520, 7720 | 8,192 |
| | ExtremeSwitching 5520 | 9,215 |
| Data Center Bridging eXchange (DCBX) protocol Type Length Value (TLVs) —maximum number of DCBX application TLVs. | All platforms | 8 |
| DHCPv6 Prefix Delegation Snooping —Maximum number of DHCPv6 prefix delegation snooped entries. | All platforms | 256 (with underlying protocol RIPng) 128 (with underlying protocol OSPFv3) 1,024 (with static routes) |
| DHCP snooping entries —maximum number of DHCP snooping entries. | ExtremeSwitching 5320, 5420, 5520, 5720 | 2,050 |
| | Extreme 7520, 7720 | 2,048 |
| Dynamic ACLs —maximum number of ACLs processed per second. | All platforms | 10 5 |
| Note: Limits are load-dependent. | with 50 DACLs with 500 DACLs | |

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

| Metric | Product | Limit |
|--|---|-------|
| EAPS domains —maximum number of EAPS domains. Note: An EAPS ring that is being spatially reused cannot have more than four configured EAPS domains. | Extreme 7520, 7720 | 4 |
| | ExtremeSwitching 5720 | 128 |
| | ExtremeSwitching 5320-24T/P, 5320-16P | 32 |
| | ExtremeSwitching 5320-48T/P, 5420, 5520 | 64 |
| EAPSV1 protected VLANs —maximum number of protected VLANs. | ExtremeSwitching 5320-24T/P, 5320-16P | 1,000 |
| | ExtremeSwitching 5320-48T/P, 5420, 5520, 5720, Extreme 7520, 7720 | 2,000 |
| EAPSV2 protected VLANs —maximum number of protected VLANs. | ExtremeSwitching 5320, 5420, 5520 | 500 |
| | ExtremeSwitching 5720, Extreme 7520, 7720 | 2,000 |
| ELSM (vlan-ports) —maximum number of VLAN ports. | ExtremeSwitching 5320-24T/P, 5320-16P | 4,000 |
| | ExtremeSwitching 5320-48T/P, 5420, 5520, 5720, Extreme 7520, 7720 | 5,000 |
| ERPS domains —maximum number of ERPS domains with or without CFM configured. | All platforms | 32 |
| ERPSV1 protected VLANs —maximum number of protected VLANs. | ExtremeSwitching 5320-24T/P, 5320-16P | 1,000 |
| | ExtremeSwitching 5320-48T/P, 5420, 5520, 5720, Extreme 7520, 7720 | 2,000 |
| ERPSV2 protected VLANs —maximum number of protected VLANs. | ExtremeSwitching 5320-24T/P, 5320-16P | 500 |
| | ExtremeSwitching 5320-48T/P, 5420, 5520, 5720, Extreme 7520, 7720 | 2,000 |
| ESRP groups —maximum number of ESRP groups | All platforms | 32 |
| ESRP domains —maximum number of ESRP domains. | All platforms | 64 |
| ESRP L2 VLANs —maximum number of ESRP VLANs without an IP address configured. | All platforms | 1,000 |
| 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 | 8 |
| ESRP (IP route tracks) —maximum IP route tracks per VLAN. | All platforms | 8 |

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

| Metric | Product | Limit |
|---|-----------------------------|---|
| ESRP (VLAN tracks) —maximum number of VLAN tracks per VLAN. | All platforms | 1 |
| Extended Edge Switching maximum BPEs —maximum number of attached bridge port extenders (BPEs). | ExtremeSwitching 5520 | 48 |
| | ExtremeSwitching 5420 | 20 |
| Extended Edge Switching maximum cascade ports —maximum number of upstream ports on bridge port extenders (BPEs). | ExtremeSwitching 5420, 5520 | 2 on V400-24 and V300 models 4 on V400-48 models |
| Extended Edge Switching maximum tiers —maximum number of cascade levels (tiers) of bridge port extenders (BPEs). | ExtremeSwitching 5420, 5520 | 4 (except for V300-8P-2T-W, which support 1 tier) |
| Extended Edge Switching maximum ring BPEs —maximum number of bridge port extenders (BPEs) in a ring topology. | ExtremeSwitching 5420, 5520 | 8 |
| Extended Edge Switching maximum VLANs —maximum number of VLANs - Includes all VLANs | ExtremeSwitching 5520 | 4,094 |
| | ExtremeSwitching 5420 | 1,024 |
| Extended Edge Switching VLAN+ port memberships —maximum number of VLAN+ (extended) port memberships. | ExtremeSwitching 5520 | 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 9: Supported Limits for the Base License (continued)

| Metric | Product | Limit |
|--|--|----------------------|
| Forwarding rate —maximum L3 software forwarding rate. | 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. | ExtremeSwitching 5320 | 32,000 |
| | ExtremeSwitching 5420M | 65,536 |
| | ExtremeSwitching 5420F | 32,768 ^f |
| | ExtremeSwitching 5520 | 114,688 ^f |
| | ExtremeSwitching 5720-MW | 163,840 ^f |
| | ExtremeSwitching 5720-MXW, Extreme 7520, 7720 | 294,912 ^f |
| FDB (multicast blackhole entries) —maximum number of multicast blackhole FDB entries. | ExtremeSwitching 5520, 5720-MW, Extreme 7520, 7720 | 4,096 |
| | ExtremeSwitching 5420 | 1,024 |
| | ExtremeSwitching 5320 | 1,000 |
| | ExtremeSwitching 5720-MXW | 16,000 |
| FDB (maximum L2 entries) —maximum number of MAC addresses. | ExtremeSwitching 5320 | 32,000 |
| | ExtremeSwitching 5420M | 65,536 |
| | ExtremeSwitching 5420F | 32,768 ^g |
| | ExtremeSwitching 5520 | 114,688 ^g |
| | ExtremeSwitching 5720-MW | 163,840 ^g |
| | ExtremeSwitching 5720-MXW, Extreme 7520, 7720 | 294,912 ^g |
| FDB (maximum L2 entries) —maximum number of multicast FDB entries. | ExtremeSwitching 5520, Extreme 7520, 7720 | 4,096 |
| | ExtremeSwitching 5320, 5420 | 1,024 |
| | ExtremeSwitching 5720 | 16,000 |
| Identity management —maximum number of Blacklist entries. | All platforms | 512 |
| Identity management —maximum number of Whitelist entries. | All platforms | 512 |
| Identity management —maximum number of roles that can be created. | All platforms | 64 |

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

| Metric | Product | Limit |
|--|---------------|-------|
| Identity management —maximum role hierarchy depth allowed. | All platforms | 5 |
| Identity management —maximum number of attribute value pairs in a role match criteria. | All platforms | 16 |
| Identity management —maximum number of child roles for a role. | All platforms | 8 |
| Identity management —maximum number of policies/dynamic ACLs that can be configured per role. | All platforms | 8 |
| Identity management —maximum number of LDAP servers that can be configured. | All platforms | 8 |
| Identity management —maximum number of Kerberos servers that can be configured. | All platforms | 20 |
| Identity management —maximum database memory size. | All platforms | 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 | 100 |
| Identity management —recommended number of ACL entries per identity. Note: Number of ACLs per identity, based on system ACL limitation. | All platforms | 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 | 500 |

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

| Metric | Product | Limit |
|---|---|---------------------|
| IGMP snooping per VLAN filters —maximum number of VLANs supported in per-VLAN IGMP snooping mode. | ExtremeSwitching 5320, 5420, Extreme 7520, 7720 | 1,500 |
| | ExtremeSwitching 5720 | 4,000 |
| | ExtremeSwitching 5520 | 2,500 |
| IGMPv1/v2 SSM-map entries —maximum number of IGMPv1/v2 SSM mapping entries. | All platforms | 500 |
| IGMPv1/v2 SSM-map entries —maximum number of sources per group in IGMPv1/v2 SSM mapping entries. | All platforms | 50 |
| IGMPv2 subscriber —maximum number of IGMPv2 subscribers per port. ⁿ | All platforms | 4,000 |
| IGMPv2 subscriber —maximum number of IGMPv2 subscribers per switch. ⁿ | ExtremeSwitching 5320, 5420, 5520 | 20,000 |
| | ExtremeSwitching 5720-MW, Extreme 7520, 7720 | 45,000 |
| | ExtremeSwitching 5720-MXW | 54,000 |
| IGMPv3 maximum source per group —maximum number of source addresses per group. | All platforms | 250 |
| IGMPv3 subscriber —maximum number of IGMPv3 subscribers per port. ⁿ | All platforms | 4,000 |
| IGMPv3 subscriber —maximum number of IGMPv3 subscribers per switch. ⁿ | ExtremeSwitching 5320, 5420, 5520 | 20,000 |
| | ExtremeSwitching 5720-MW, Extreme 7520, 7720 | 45,000 |
| | ExtremeSwitching 5720-MXW | 54,000 |
| IP ARP entries in software —maximum number of IP ARP entries in software. Note: Might be limited by hardware capacity of FDB (maximum L2 entries). | ExtremeSwitching 5320, 5520 | 74,750 ^h |
| | ExtremeSwitching 5420M models | 24,000 |
| | ExtremeSwitching 5420F models | 12,000 |
| | ExtremeSwitching 5720-MW | 100,000 |
| | Extreme 7520, 7720 | 184,318 (up to) |
| | ExtremeSwitching 5720-MXW | 221,000 |

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

| Metric | Product | Limit |
|---|---------------------------------------|--|
| IPv4 ARP entries in hardware with minimum LPM routes —maximum recommended number of IPv4 ARP entries in hardware, with minimum LPM routes present. Assumes number of IP route reserved entries is 100 or less. | ExtremeSwitching 5320 | 12,000 |
| | ExtremeSwitching 5420M models | 24,000 |
| | ExtremeSwitching 5420F models | 12,000 |
| | ExtremeSwitching 5520 | 60,000 ^h |
| | ExtremeSwitching 5720-MW | 80,000 ^h |
| | Extreme 7520, 7720 | 146,000 ^h |
| IPv4 ARP entries in hardware with maximum LPM routes —maximum recommended number of IPv4 ARP entries in hardware, with maximum LPM routes present. Assumes number of IP route reserved entries is “maximum.” | ExtremeSwitching 5320 | 10,000 |
| | ExtremeSwitching 5420M models | 21,000 |
| | ExtremeSwitching 5420F models | 10,000 |
| | ExtremeSwitching 5520 | 49,000 ^h |
| | ExtremeSwitching 5720-MW | 70,000 ^h |
| | Extreme 7520, 7720 | 125,000 ^h |
| IP flow information export (IPFIX) —number of simultaneous flows. | 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) |
| IPv4 remote hosts in hardware with zero LPM routes —maximum recommended number of IPv4 remote hosts (hosts reachable through a gateway) in hardware when LPM routing is not used. Assumes number of IP route reserved entries is 0, and number of IPv4 ARP entries present is 100 or less. | ExtremeSwitching 5320 | 20,000 |
| | ExtremeSwitching 5320-24T/P, 5320-16P | 24,000 |
| | ExtremeSwitching 5420M | 36,000 |
| | ExtremeSwitching 5420F | 24,000 ^h |
| | ExtremeSwitching 5520 | 102,000 ^h |
| | ExtremeSwitching 5720-MW | 139,000 ^h |
| | Extreme 7520, 7720 | 241,000 (up to) ^h |
| ExtremeSwitching 5720-MXW (with ALPM enabled) | 245,000 ^h | |

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

| Metric | Product | Limit |
|---|-------------------------------|------------------------|
| 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 |
| | ExtremeSwitching 5320, 5420 | 25,000 |
| | Extreme 7520, 7720 | 131,000 |
| | ExtremeSwitching 5720-MW | 163,000 |
| | ExtremeSwitching 5720-MXW | 288,000 |
| IPv4 routes (LPM entries in hardware) — number of IPv4 routes in hardware. | ExtremeSwitching 5520 | 81,000 ^q |
| | Extreme 7520, 7720 | 131,000 ^q |
| | ExtremeSwitching 5720-MW | 163,000 ^q |
| | ExtremeSwitching 5720-MXW | 288,000 ^q |
| IPv6 6in4 tunnel —maximum number of IPv6 6in4 tunnels. | All platforms | 255 |
| IPv6 6to4 tunnel —maximum number of IPv6 6to4 tunnels. | All platforms | 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 |
| IPv6 host entries in hardware —maximum number of IPv6 neighbor entries in hardware. | ExtremeSwitching 5320 | 6,000 |
| | ExtremeSwitching 5420M models | 12,000 |
| | ExtremeSwitching 5420F models | 6,000 |
| | ExtremeSwitching 5520 | 18,000 ^s |
| | ExtremeSwitching 5720-MW | 24,000 ^s |
| | Extreme 7520, 7720 | 57,000 ^h |
| IPv6 routes in software —maximum number of IPv6 routes in software, including static routes and routes from all routing protocols. | ExtremeSwitching 5520 | 18,000 ^q |
| | ExtremeSwitching 5320, 5420 | 25,000 |
| | Extreme 7520, 7720 | 65,000 ^q |
| | ExtremeSwitching 5720-MW | 107,000 ^q |
| | ExtremeSwitching 5720-MXW | 213,000 ^q |
| IPv6 routes (LPM entries in hardware) —maximum number of IPv6 routes in hardware. | ExtremeSwitching 5520 | 40,000 ^q |
| | ExtremeSwitching 5420 | 6,000 |
| | Extreme 7520, 7720 | 65,000 ^q |
| | ExtremeSwitching 5720-MW | 107,000 ^q |
| | ExtremeSwitching 5720-MXW | 213,000 ^q |

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

| Metric | Product | Limit |
|---|---|----------------------------|
| 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 ^r |
| | ExtremeSwitching 5720-MW | 16,000 ^r |
| | ExtremeSwitching 5720-MXW | 24,000 ^r |
| IPv6 route sharing in hardware —route mask lengths for which ECMP is supported in hardware. | ExtremeSwitching 5320, 5420 | 0–64, >64 single path only |
| | ExtremeSwitching 5520, 5720, Extreme 7520, 7720 | 0–128 ^r |
| IP router interfaces —maximum number of VLANs performing IPv4 and/or IPv6 routing. Excludes sub-VLANs. | ExtremeSwitching 5320-48T/P, 5420 | 1,533 |
| | 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. | ExtremeSwitching 5320, 5420, 5520 | 2, 4, or 8 |
| | ExtremeSwitching 5720, Extreme 7520, 7720 | 2, 4, 8, 16, 32, or 64 |

Table 9: 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. | ExtremeSwitching 5320 | 128 (if maximum gateways is 2) 128 (if maximum gateways is 4) 64 (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. For more information about RIOT, see Switch Engine 32.6.1 User Guide . | 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. For more information about RIOT, see Switch Engine 32.6.1 User Guide . | 2046 (if maximum gateways is 2) 1022 (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 Note: The values here represent the maximum attainable ECMP groups of which, due to the RIOT feature, half are reserved for overlay and half for underlay routing. For more information | 2,046 2,046 2,046 1,022 510 254 |

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

| Metric | Product | Limit |
|---|---|--|
| | about RIOT, see Switch Engine 32.6.1 User Guide . | |
| | 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. For more information about RIOT, see Switch Engine 32.6.1 User Guide . | 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: <ul style="list-style-type: none"> The internal lookup table configuration used is "I2-and-I3". IPv6 and IPv4 L2 IPMC scaling is the same for this mode. Layer-2 IPMC forwarding cache limits—(IGMP/MLD/PIM snooping) in mixed-mode are the same. | ExtremeSwitching 5320 ExtremeSwitching 5420 ExtremeSwitching 5520 ExtremeSwitching 5720-MW Extreme 7520, 7720 ExtremeSwitching 5720-MXW | 32,000 64,000 32,768 49,152 73,000 81,920 |

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

| Metric | Product | Limit |
|--|---|---------|
| Layer-3 IPv4 Multicast —maximum number of <S,G,V> entries installed in the hardware (IP multicast compression enabled). Note: <ul style="list-style-type: none"> Limit value is the same for MVR senders, PIM Snooping entries, PIM SSM cache, IGMP senders, PIM cache. Assumes source-group-vlan mode as look up key. Layer 3 IPMC cache limit in mixed mode also has the same value. | ExtremeSwitching 5320 | 8,000 |
| | ExtremeSwitching 5420M | 12,000 |
| | ExtremeSwitching 5420F | 6,000 |
| | ExtremeSwitching 5520 | 43,000 |
| | ExtremeSwitching 5720-MW | 61,000 |
| | Extreme 7520, 7720 | 104,000 |
| | ExtremeSwitching 5720-MXW | 110,000 |
| Layer-3 IPv6 Multicast —maximum number of <S,G,V> entries installed in the hardware (IP multicast compression enabled). Note: <ul style="list-style-type: none"> Limit value is the same for MLD sender per switch, PIM IPv6 cache. Assumes source-group-vlan mode as lookup key. | ExtremeSwitching 5320 | 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 |
| 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: ExtremeSwitching 5320, 5420 | 8 |
| | For standalone: ExtremeSwitching 5520, 5720, Extreme 7520, 7720 | 32 |
| | For stacked: ExtremeSwitching 5520, 5720, Extreme 7520, 7720 | 64 |

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

| Metric | Product | Limit |
|--|--|--|
| Logged messages —maximum number of messages logged locally on the system. | All platforms | 20,000 |
| MAC-based security —maximum number of MAC-based security policies. | All platforms | 1,024 |
| MAC Locking —Maximum number of MAC locking stations that can be learned on a port. | All platforms | 64 (static MAC locking stations) 600 (first arrival MAC locking stations) |
| Meters —maximum number of meters supported. | All platforms | 2,048 |
| Maximum mirroring instances. | All platforms | 4 total, 2 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 Extreme 7520, 7720 Stacking Note: Maximum user ports | 55 63 59 61 1 |

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

| Metric | Product | Limit |
|---|---|--------|
| 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, 5420 | 1,500 |
| | ExtremeSwitching 5520 | 1,000 |
| | ExtremeSwitching 5720, Extreme 7520, 7720 | 1,500 |
| Multicast listener discovery (MLD)v1 subscribers —maximum number of MLDv1 subscribers per port. ⁿ | All platforms | 4,000 |
| Multicast listener discovery (MLD)v1 subscribers —maximum number of MLDv1 subscribers per switch. ⁿ | ExtremeSwitching 5320, 5420, 5520 | 10,000 |
| | ExtremeSwitching 5720-MW | 30,000 |
| | Extreme 7520, 7720 | 45,000 |
| | ExtremeSwitching 5720-MXW | 54,000 |
| Multicast listener discovery (MLD)v2 subscribers —maximum number of MLDv2 subscribers per port. ⁿ | All platforms | 4,000 |
| Multicast listener discovery (MLD)v2 subscribers —maximum number of MLDv2 subscribers per switch. ⁿ | ExtremeSwitching 5320, 5420, 5520 | 10,000 |
| | ExtremeSwitching 5720-MW | 30,000 |
| | Extreme 7520, 7720 | 45,000 |
| | ExtremeSwitching 5720-MXW | 54,000 |
| 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 | 500 |
| Multicast listener discovery (MLD) SSM-MAP entries —maximum number of sources per group in MLD SSM mapping entries. | All platforms | 50 |
| Network Address Translation (NAT) VLANs —maximum number of NAT VLANs. | Extreme 7520, 7720 | 4 |

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

| Metric | Product | Limit |
|---|--------------------|-------|
| 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 clients being authenticated with policy mode enabled with TCI overwrite enabled. | 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 |
| 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 9: Supported Limits for the Base License (continued)

| Metric | Product | Limit |
|--|--|--|
| ONEPolicy Rules per Role/ Profile—maximum number of rules per role/policy. | ExtremeSwitching 5320 | IPv4 Rules: 1,024 IPv6 Rules: 0 MAC Rules: 0 L2 Rules: 952 |
| | ExtremeSwitching 5420-F, 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 IPv6 Rules: 1,024 MAC Rules: 1,024 L2 Rules: 952 |

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

| Metric | Product | Limit |
|---|---|---|
| ONEPolicy Authenticated Users per Switch —maximum number of authenticated users per switch only with TCI-Overwrite enabled. | ExtremeSwitching 5520, 5720 | 1,024 |
| | ExtremeSwitching 5320, 5420, Extreme 7520, 7720 | 512 |
| | 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, 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, 5420 | 768 |
| | Extreme 7520, 7720 | 24,576 |
| | ExtremeSwitching 5720 | 12,288 |
| | ExtremeSwitching 5520 | 9,216 |
| ONEPolicy Authenticated Users per Port per Switch — maximum number of authenticated users per port with only with TCI-Overwrite enabled. | 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 |

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

| Metric | Product | Limit |
|---|---|--------|
| 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, Extreme 7520, 7720 | 512 |
| | ExtremeSwitching 5720-MW | 1,536 |
| | ExtremeSwitching 5720-MXW | 2,048 |
| | 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, Extreme 7520, 7720 | 512 |
| | ExtremeSwitching 5720-MW | 1,536 |
| | ExtremeSwitching 5720-MXW | 2,048 |
| | 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, 5420-F, 5520 | 1,024 |
| | ExtremeSwitching 5720-MW | 1,536 |
| | ExtremeSwitching 5720-MXW | 2,048 |
| | ExtremeSwitching 5420-M, Extreme 7520, 7720 | 512 |
| | | |
| ONEPolicy Permit/Deny Traffic Classification Rules Types —maximum number of unique Layer 2 permit/deny traffic classification rules (ethertype/port). | ExtremeSwitching 5320, 5420-M, 5520 | 952 |
| | ExtremeSwitching 5720-MW | 1,464 |
| | ExtremeSwitching 5720-MXW | 1,976 |
| | ExtremeSwitching 5420-F, Extreme 7520, 7720 | 440 |
| | | |
| OnePolicy Maximum number of rules supported in AccessList mode —maximum number of rules in AccessList mode. | Extreme 7520, 7720 | 3,512 |
| | ExtremeSwitching 5320, 5420-F | 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 | 8 |

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

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

Table 9: Supported Limits for the Base 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 5720, Extreme 7520, 7720 | 4,000 |
| | ExtremeSwitching 5320, 5420 | 500 |
| OSPFv3 interfaces —maximum number of OSPFv3 interfaces (active interfaces only). | All platforms | 4 |
| OSPFv3 neighbors —maximum number of OSPFv3 neighbors. | All platforms | 4 |
| OSPFv3 virtual links —maximum number of OSPFv3 virtual links supported. | ExtremeSwitching 5520, 5720, Extreme 7520, 7720 | 16 |
| | ExtremeSwitching 5320, 5420 | 12 |
| PIM IPv4 (maximum interfaces) —maximum number of PIM active interfaces. | All platforms | N/A |
| 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 | N/A |
| PIM IPv6 Limits —maximum number of multicast sources per group. | All platforms | 1,750 |

Table 9: Supported Limits for the Base 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 |
| Policy-based routing (PBR) redundancy —maximum number of flow-redirects. | All platforms | 256 ^o |
| Policy-based routing (PBR) redundancy —maximum number of next hops per each flow-direct. | All platforms | 32 ^o |
| Port-specific VLAN tags —maximum number of port-specific VLAN tags. | ExtremeSwitching 5320, 5420 | N/A |
| | ExtremeSwitching 5520, 5720, Extreme 7520, 7720 | 1,023 |
| Port-specific VLAN tags —maximum number of port-specific VLAN tag ports. | ExtremeSwitching 5320, 5420 | N/A |
| | ExtremeSwitching 5520, 5720, Extreme 7520, 7720 | 4,000 |
| Private VLANs —maximum number of subscribers. Assumes a minimum of one port per network and subscriber VLAN. | ExtremeSwitching 5320, 5420, 5520, 5720 | 36 |
| | Extreme 7520, 7720 | 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. | ExtremeSwitching 5320, 5420, 5520, 5720 | 960 |
| | Extreme 7520, 7720 | 1,024 |

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

| Metric | Product | Limit |
|---|---|--------|
| Private VLANs —maximum number of private VLANs in an L2-only environment. | ExtremeSwitching 5320, 5420, 5520, 5720 | 960 |
| | Extreme 7520, 7720 | 1,280 |
| Route policies —suggested maximum number of lines in a route policy file. | All platforms | 10,000 |
| RIP Learned Routes —maximum number of RIP routes supported without aggregation. | All platforms | 10,000 |
| RIP interfaces on a single router —recommended maximum number of RIP routed interfaces on a switch. | All platforms | 256 |
| RIPng learned routes —maximum number of RIPng routes. | All platforms | 3,000 |
| Spanning Tree (maximum STPDs) —maximum number of Spanning Tree Domains on port mode EMISTP. | ExtremeSwitching 5320-48T/P, 5420, 5520, 5720, Extreme 7520, 7720 | 64 |
| | ExtremeSwitching 5320-24T/P, 5320-16P | 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). | ExtremeSwitching 5320, 5420, 5520, 5720 | 128 |
| | Extreme 7520, 7720 | 384 |
| Spanning Tree —maximum number of multiple spanning tree instances (MSTI) domains. | ExtremeSwitching 5320-48T/P, 5420, 5520, 5720, Extreme 7520, 7720 | 64 |
| | ExtremeSwitching 5320-24T/P, 5320-16P | 32 |

Table 9: 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 | 600 |
| | ExtremeSwitching 5320-24T/P, 5320-16P | 256 |
| Spanning Tree —maximum number of VLANs on all MSTP instances. | ExtremeSwitching 5320-48T/P, 5420, 5520, 5720, Extreme 7520, 7720 | 1,024 |
| | ExtremeSwitching 5320-24T/P, 5320-16P | 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 | 4,096 |
| | ExtremeSwitching 5320-24T/P, 5320-16P | 2,048 |
| Spanning Tree (maximum VLANs) —maximum number of STP-protected VLANs (dot1d and dot1w). | ExtremeSwitching 5320-48T/P, 5420, 5520, 5720, Extreme 7520, 7720 | 1,024 |
| | ExtremeSwitching 5320-24T/P, 5320-16P | 600 |
| SSH (number of sessions) —maximum number of simultaneous SSH sessions. | All platforms | 8 |
| Static MAC multicast FDB entries —maximum number of permanent multicast MAC entries configured into the FDB. | All platforms | 1,024 |
| Syslog servers —maximum number of simultaneous Syslog servers that are supported. | All platforms | 16 |
| Syslog targets —maximum number of configurable Syslog targets. | All platforms | 16 |
| Telnet (number of sessions) —maximum number of simultaneous Telnet sessions. | All platforms | 8 |
| Virtual routers —maximum number of user-created virtual routers that can be created on a switch. | ExtremeSwitching 5320-48T/P, 5420, 5520, 5720, Extreme 7520, 7720 | 63 |
| | ExtremeSwitching 5320-24T/P, 5320-16P | 16 (local-only VRs) |

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

| Metric | Product | Limit |
|---|---|---------------------|
| 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 * |
| | 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 |
| | 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 |
| | 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 |
| | ExtremeSwitching 5320-24T/P, 5320-16P | 509 |
| | ExtremeSwitching 5520, 5720, Extreme 7520, 7720 | 2,048 |
| VLAN Port Interfaces (VPIF) —maximum number of VLAN port interfaces. | ExtremeSwitching 5320 | 53,328 |
| | ExtremeSwitching 5420 | 60,000 |
| | 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 |
| | ExtremeSwitching 5320, 5420 | 3 |

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

| Metric | Product | Limit |
|---|---|--------------------------------------|
| VLANs (maximum active protocol-sensitive filters) —number of simultaneously active protocol filters in the switch. | All platforms | 16 |
| VLAN translation —maximum number of translation VLANs. Assumes a minimum of one port per translation and member VLAN. | ExtremeSwitching 5320, 5420, 5520, 5720 Extreme 7520, 7720 | 36 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. | ExtremeSwitching 5320, 5420, 5520, 5720 Extreme 7520, 7720 | 960 1,024 |
| VLAN translation —maximum number of translation VLAN pairs in an L2-only environment. | ExtremeSwitching 5320, 5420, 5520, 5720 Extreme 7520, 7720 | 960 2,046 |
| VMAN CEP —maximum number of CVIDs. Note: With 75% hash table utilization. | ExtremeSwitching 5320, 5420 ExtremeSwitching 5520, 5720 | 768 9,000 |
| VRRP (v2/v3-IPv4) (maximum instances) —maximum number of VRRP instances for a single switch. Note: These limits are applicable for Fabric Routing configuration also. Note: Number of groups configured should not exceed the number of individual VRs supported (that is, in normal mode) for that platform type. | Normal Mode (as individual VRs): All platforms Scaled Mode (with groups): ExtremeSwitching 5720, Extreme 7520, 7720 ExtremeSwitching 5320, 5420, 5520 Sliced Mode: All platforms | 511 2,048 1,000 511 |

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

| Metric | Product | Limit |
|---|--|---|
| VRRP (v3-IPv6) (maximum instances) —maximum number of VRRP instances for a single switch. (VRRP-VRRPv3-IPv6) Note: These limits are applicable for Fabric Routing configuration also. Note: Number of groups configured should not exceed the number of individual VRs supported (that is, in normal mode) for that platform type. | Normal Mode (as individual VRs): All platforms | 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 | 255 |
| VRRP (v2/v3-IPv4/IPv6) (maximum VRIDs per VLAN) —maximum number of VRIDs per VLAN. | All platforms | 255 |
| VRRP (v2/v3-IPv4/IPv6) (maximum ping tracks) —maximum number of ping tracks per VLAN. | All platforms | 8 |
| VRRP (maximum ping tracks) —maximum number of ping tracks per VRRP Instance under 128 VRRP instances. | All platforms | 8 (20 centisecond or 1 second hello interval) |
| VRRP (v3-IPv6) (maximum ping tracks) —maximum number of ping tracks per VRRP Instance under 128 VRRP instances. | All platforms | 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 | 8 |
| VRRP (v2/v3-IPv4/IPv6) —maximum number of VLAN tracks per VLAN. | All platforms | 8 |

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

| Metric | Product | Limit |
|---|---|-----------------------------------|
| <p>VXLAN—maximum virtual networks.</p> <p>Note: Every VPLS instance/PSTag VLAN reduces this limit by 1.</p> <p>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.</p> <p>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.</p> | <p>ExtremeSwitching 5520, 5720, Extreme 7520, 7720</p> <p>ExtremeSwitching 5320, 5420</p> | <p>2,048–4,000</p> <p>200-375</p> |
| <p>VXLAN—maximum tenant VLANs plus port combinations</p> <p>Note: Every (VPLS/PSTag VLAN) + port reduces the limit by 1.</p> | <p>ExtremeSwitching 5520, 5720, Extreme 7520, 7720</p> <p>ExtremeSwitching 5320, 5420</p> | <p>4,096</p> <p>200-375</p> |
| <p>VXLAN—maximum static MAC to IP bindings.</p> <p>Note: Every FDB entry configured reduces this limit by 1.</p> | All platforms | 64,000 |
| VXLAN —maximum RTEP IP addresses | All platforms | 512 |
| <p>VXLAN—maximum virtual networks with dynamic learning and OSPF extensions for VXLAN</p> | <p>ExtremeSwitching 5520, 5720, Extreme 7520, 7720</p> <p>ExtremeSwitching 5320, 5420</p> | <p>4,000</p> <p>375</p> |

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

| Metric | Product | Limit |
|---|---------------|-----------------------------|
| 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 | 2,048 |
| XNV database entries —maximum number of VM database entries (combination of local and network VMs). | All platforms | 16,000 |
| XNV database entries —maximum number of VPP database entries (combination of local and network VPPs). | All platforms | 2,048 |
| XNV dynamic VLAN —Maximum number of dynamic VLANs created (from VPPs /local VMs). | All platforms | 2,048 |
| XNV local VPPs —maximum number of XNV local VPPs. | All platforms | 2,048 ingress 512 egress |
| XNV policies/dynamic ACLs —maximum number of policies/dynamic ACLs that can be configured per VPP. | All platforms | 8 ingress 4 egress |
| XNV network VPPs —maximum number of XNV network VPPs. ^P | All platforms | 2,048 ingress 512 egress |

Premier License Limits

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

Table 10: 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 7520, 7720 | 256 |
| | ExtremeSwitching 5320 | 204 |
| BGP (networks) —maximum number of BGP networks. | ExtremeSwitching 5420, 5520, 5720, Extreme 7520, 7720 | 1,024 |
| | ExtremeSwitching 5320 | 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 | 128 |
| | ExtremeSwitching 5720, Extreme 7520, 7720 | 300 |
| | ExtremeSwitching 5320 | 100 |
| BGP (peer groups) —maximum number of BGP peer groups. | ExtremeSwitching 5420, 5520, 5720, Extreme 7520, 7720 | 64 |
| | ExtremeSwitching 5320 | 50 |
| BGP (policy entries) —maximum number of BGP policy entries per route policy. | ExtremeSwitching 5420, 5520, 5720, Extreme 7520, 7720 | 256 |
| | ExtremeSwitching 5320 | 204 |
| BGP (policy statements) —maximum number of BGP policy statements per route policy. | ExtremeSwitching 5420, 5520, 5720, Extreme 7520, 7720 | 1,024 |
| | ExtremeSwitching 5320 | 820 |
| BGP multicast address-family routes —maximum number of multicast address-family routes. | ExtremeSwitching 5520, 5720-MXW, Extreme 7520, 7720 | 25,000 |
| | ExtremeSwitching 5320, 5420, 5720-MW | 20,000 |

Table 10: Supported Limits for the Premier License (continued)

| Metric | Product | Limit |
|--|--|------------|
| BGP (unicast address-family routes) —maximum number of unicast address-family routes. | ExtremeSwitching 5420, 5520, 5720-MXW, Extreme 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 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 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 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 7520, 7720 | 30,000 |
| | ExtremeSwitching 5320 | 14,000 |
| EVPN EVI instances —maximum number of EVI instances. | All platforms | 1,024 |
| GRE Tunnels —maximum number of GRE tunnels. | All platforms | 255 |
| 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 |

Table 10: Supported Limits for the Premier License (continued)

| Metric | Product | Limit |
|--|---------------|--------|
| 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 |
| 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 |

Table 10: Supported Limits for the Premier License (continued)

| Metric | Product | Limit |
|--|---|---------|
| 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 7520, 7720 | 16 |
| | ExtremeSwitching 5320, 5420, 5720 | N/A |
| L2 VPN: VPLS MAC addresses —maximum number of MAC addresses learned by a switch. | ExtremeSwitching 5520 | 64,000 |
| | Extreme 7520, 7720 | 140,000 |
| | ExtremeSwitching 5320, 5420, 5720 | N/A |
| L2 VPN: VPLS VPNs —maximum number of VPLS virtual private networks per switch. | ExtremeSwitching 5520, Extreme 7520, 7720 | 1,023 |
| | ExtremeSwitching 5320, 5420, 5720 | N/A |
| L2 VPN: VPLS peers —maximum number of VPLS peers per VPLS instance. | ExtremeSwitching 5520, Extreme 7520, 7720 | 64 |
| | ExtremeSwitching 5320, 5420, 5720 | N/A |
| L2 VPN: LDP pseudowires —maximum number of pseudowires per switch. | ExtremeSwitching 5520 | 4,000 |
| | Extreme 7520, 7720 | 7,000 |
| | ExtremeSwitching 5320, 5420, 5720 | N/A |
| L2 VPN: static pseudowires —maximum number of static pseudowires per switch. | ExtremeSwitching 5520 | 4,000 |
| | Extreme 7520, 7720 | 7,000 |
| | ExtremeSwitching 5320, 5420, 5720 | N/A |
| L2 VPN: Virtual Private Wire Service (VPWS) VPNs —maximum number of virtual private networks per switch. | ExtremeSwitching 5520 | 1,023 |
| | Extreme 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 |

Table 10: Supported Limits for the Premier License (continued)

| Metric | Product | Limit |
|---|--|-------|
| 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 |
| MPLS LDP transit LSPs — maximum number of MPLS transit LSPs per switch. | ExtremeSwitching 5520, 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, Extreme 7520, 7720 | 4,000 |
| | ExtremeSwitching 5320, 5420, 5720 | N/A |

Table 10: Supported Limits for the Premier License (continued)

| Metric | Product | Limit |
|---|---|--------|
| MPLS static egress LSPs —maximum number of static egress LSPs. | ExtremeSwitching 5520 | 4,000 |
| | Extreme 7520, 7720 | 8,000 |
| | ExtremeSwitching 5320, 5420, 5720 | N/A |
| MPLS static ingress LSPs —maximum number of static ingress LSPs. | ExtremeSwitching 5520, Extreme 7520, 7720 | 4,000 |
| | ExtremeSwitching 5320, 5420, 5720 | N/A |
| MPLS static transit LSPs —maximum number of static transit LSPs | ExtremeSwitching 5520, 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 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 5420, 5520 | 5,000 |
| | ExtremeSwitching 5720 | 10,000 |
| | ExtremeSwitching 5320 | 4,000 |
| OSPFv2 inter- or intra-area routes —recommended maximum number of inter- or intra-area routes contained in an OSPF LSDB with one ABR in OSPF domain. | ExtremeSwitching 5520, 5720, Extreme 7520, 7720 | 2,000 |
| | ExtremeSwitching 5320, 5420 | 1,600 |
| 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 | 1,600 |

Table 10: Supported Limits for the Premier License (continued)

| Metric | Product | Limit |
|---|---|--------|
| OSPFv2 interfaces —recommended maximum number of OSPF interfaces on a switch (active interfaces only). | ExtremeSwitching 5420, 5520, 5720, Extreme 7520, 7720 | 400 |
| | ExtremeSwitching 5320 | 320 |
| OSPFv2 links —maximum number of links in the router LSA. | ExtremeSwitching 5420, 5520, 5720, Extreme 7520, 7720 | 400 |
| | ExtremeSwitching 5320 | 320 |
| OSPFv2 neighbors —maximum number of supported OSPF adjacencies. | ExtremeSwitching 5420, 5520, 5720, Extreme 7520, 7720 | 128 |
| | ExtremeSwitching 5320 | 96 |
| OSPFv2 routers in a single area —recommended maximum number of routers in a single OSPF area. | ExtremeSwitching 5420, 5520 | 50 |
| | ExtremeSwitching 5720, Extreme 7520, 7720 | 100 |
| | ExtremeSwitching 5320 | 40 |
| OSPFv2 virtual links —maximum number of supported OSPF virtual links. | ExtremeSwitching 5420, 5520, 5720, Extreme 7520, 7720 | 32 |
| | ExtremeSwitching 5320 | 25 |
| OSPFv3 areas —as an ABR, the maximum number of supported OSPFv3 areas. | ExtremeSwitching 5420, 5520 | 16 |
| | ExtremeSwitching 5720, Extreme 7520, 7720 | 100 |
| | ExtremeSwitching 5320 | 12 |
| OSPFv3 external routes —recommended maximum number of external routes. | ExtremeSwitching 5520, 5720-MXW, Extreme 7520, 7720 | 10,000 |
| | ExtremeSwitching 5420 | 6,000 |
| | ExtremeSwitching 5320, 5720-MW | 7,500 |
| OSPFv3 inter- or intra-area routes —recommended maximum number of inter- or intra-area routes. | ExtremeSwitching 5520 | 3,000 |
| | ExtremeSwitching 5320, 5720, Extreme 7520, 7720 | 4,000 |
| | ExtremeSwitching 5420 | 6,000 |
| OSPFv3 interfaces —maximum number of OSPFv3 interfaces (active interfaces only). | ExtremeSwitching 5420, 5520, 5720, Extreme 7520, 7720 | 256 |
| | ExtremeSwitching 5320 | 192 |
| OSPFv3 neighbors —maximum number of OSPFv3 neighbors. | ExtremeSwitching 5420, 5520, 5720, Extreme 7520, 7720 | 64 |
| | ExtremeSwitching 5320 | 48 |
| OSPFv3 virtual links —maximum number of OSPFv3 virtual links supported. | ExtremeSwitching 5420, 5520, 5720, Extreme 7520, 7720 | 16 |
| | ExtremeSwitching 5320 | 12 |

Table 10: Supported Limits for the Premier License (continued)

| Metric | Product | Limit |
|--|---------------|--|
| 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 |
| 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 |

Notes for Limits Tables

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



Open Issues, Known Behaviors, and Resolved Issues

[Open Issues](#) on page 75

[Known Behaviors](#) on page 75

[Resolved Issues in Switch Engine 32.6.1](#) on page 75

This chapter 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

There are no known issues in this version.

Resolved Issues in Switch Engine 32.6.1

The following issues were resolved in Switch Engine 32.6.1. Version 32.6.1 includes all fixes up to and including versions 31.6, 31.7, 32.1, 32.2, 32.3, 32.4, 32.5, and 32.6.

Table 11: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 32.6.1

| Defect Number | Description |
|----------------|--|
| General | |
| CFD-9513 | extremeOverheat traps are sent continuously despite device the temperature being below the threshold. |
| EXOS-31724 | In a stack setup, the Primary and Backup slots have different default FEC settings. Example: For 25G SFP28 ports in the stack, the default FEC setting on the Primary node is enabled, while the default on the Backup is disabled. |
| EXOS-33062 | Known multicast packets, such as mDNS, LLMNR, and UPnP, are getting looped in EAPS and STP environments after upgrading the switches to version 32.2. |

Table 11: Resolved Issues, Platform-Specific, and Feature Change Requests (CRs) in 32.6.1 (continued)

| Defect Number | Description |
|--------------------|---|
| EXOS-33378 | Added the ability to configure the 10338 (10G BASE-T SFP+ 30m TAA) transceiver and corresponding switch port to run at 1000BASE-T mode where applicable. The following switch models are supported: 5420F-24S-4XE 5520-48SE 5520-48SE-ACDC 5520-24X 5520-24X-ACDC 7520-48Y (QSFP28 ports need channelization with QSA adapter) 7720-32C |
| EXOS-33882 | Enabling VRRP Fabric Routing shouldn't be allowed on a VRRP group when a group member has priority 255. |
| EXOS-33894 | With the STP auto-edge feature, a port is detected as an "Edge" port but shown as "point-to-point". |
| EXOS-34000 | The global-rule option in the CLEAR-Flow ACL is not working. |
| EXOS-34001 | UPM profile event lost after switch restart. |
| EXOS-34006 | Inconsistent behavior with the disable/enable snmp traps identity-management command in the configuration. |
| EXOS-34030 | This IP-Security SNMP trap for a rogue DHCP server violation displays the IP address of the DHCP server in the reverse order. |
| EXOS-34034 | The last port of a VLAN can't be deleted using SNMP. |
| SummitStack | |
| EXOS-31554 | Default configuration for non-primary slots are shown under normal configuration. |