



VSP 4900 Series Installation Guide

Setup and Configuration

9036268-01 Rev. AH
June 2026



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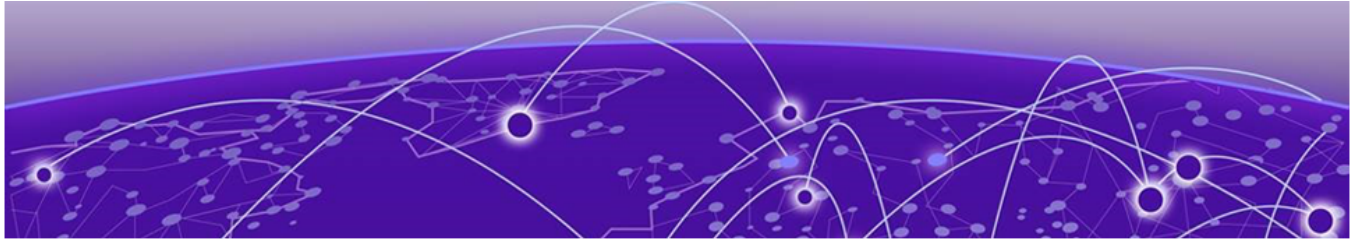
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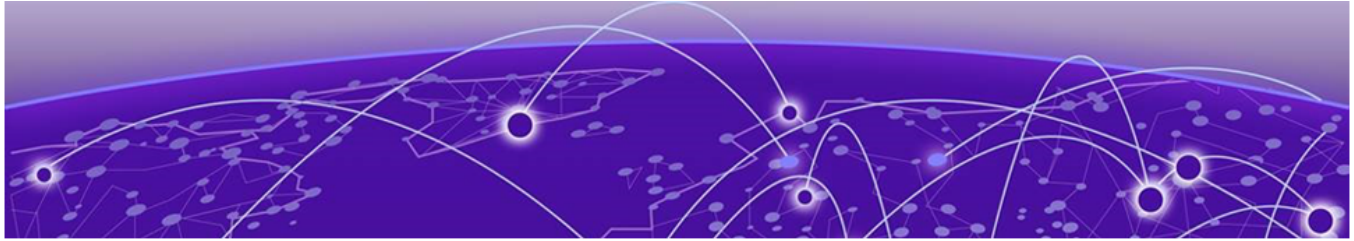
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Abstract

This installation guide for ExtremeSwitching™ VSP 4900 Series switches (June 2026, Rev. AH) provides comprehensive technical instructions for deploying, configuring, and maintaining enterprise-class Ethernet switching platforms operating on the VOSS operating system. It details hardware architecture, including modular Versatile Interface Modules (VIMs) supporting 10/25/40GbE uplinks, MACsec-enabled ports, PoE capabilities, redundant hot-swappable power supplies (350W–2000W), and SSD-based storage expansion. The guide provides step-by-step procedures for site preparation, rack installation, cabling, power provisioning, and initial device activation through CLI, web GUI, SSH2, and SNMP interfaces, emphasizing enterprise LAN and top-of-rack deployment scenarios. Key updates include support for the VIM5-4YE module and expanded console cable options. It outlines environmental, power, and regulatory requirements, including redundancy, UPS integration, grounding, and EMI compliance, alongside security considerations such as MACsec encryption and role-based access control via VOSS. Monitoring, diagnostics, and troubleshooting guidance cover LED indicators, thermal safeguards, hardware replacement, and failure scenarios. Intended for network administrators with foundational LAN and routing knowledge, the guide delivers detailed operational, configuration, and maintenance practices for scalable, high-performance switching environments.



Introduction to the VSP 4900 Series Installation Guide

This guide provides the instructions and supporting information needed to install the Extreme Networks® Summit® VSP 4900 Series family of switches.

This guide includes information about site preparation, switch functionality, and switch operation.

This guide is intended for use by network administrators responsible for installing and setting up network equipment. It assumes a basic working knowledge of:

- Local area networks (LANs)
- Ethernet concepts
- Ethernet switching and bridging concepts
- Routing concepts
- Simple Network Management Protocol (SNMP)
- Basic equipment installation procedures

See the *VOSS User Guide* and the *VOSS Command References* for your version of the VOSS operating system for information about configuring Extreme Networks devices.



Note

If the information in an installation note or release note shipped with your Extreme Networks equipment differs from the information in this guide, follow the installation or release note.

Text Conventions

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

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

Table 1: Notes and warnings

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

Table 2: Text

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

Table 3: Command syntax

Convention	Description
bold text	Bold text indicates command names, keywords, and command options.
<i>italic text</i>	Italic text indicates variable content.

Table 3: Command syntax (continued)

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

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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

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4. Select **Subscribe**.
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You can modify your product selections or unsubscribe at any time.

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[Hardware and Software Compatibility](#) for Extreme Networks products

[Extreme Optics Compatibility](#)

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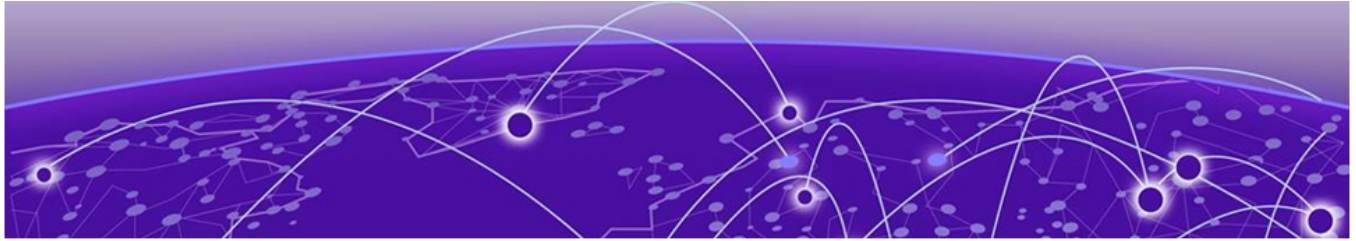
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- Improvements that would help you find relevant information.
- Broken links or usability issues.

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



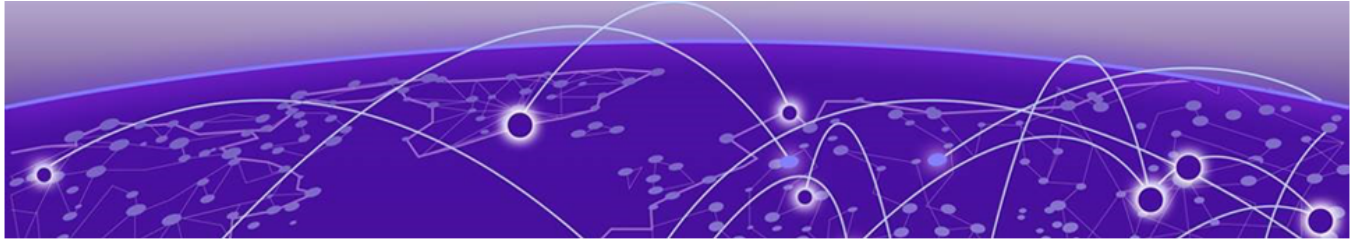
New in this Guide

The following sections describe the recent documentation revisions for this guide. Use this information to locate the latest updates.

June 2026

The following table lists the documentation updates for June, 2026.

Description	Section
Updates to VIM5-4YE VIM module support	Versatile Interface Modules on page 26 VIM5-4YE Versatile Interface Module on page 32
Added supported console cables	VSP 4900 Series Technical Specifications on page 73



VSP 4900 Series Overview

[VSP4900-48P Switch Features](#) on page 16

[VSP4900-12MXU-12XE Switch Features](#) on page 16

[VSP4900-24S Switch Features](#) on page 17

[VSP4900-24XE Switch Features](#) on page 18

ExtremeSwitching VSP 4900 Series switches provide support that can be deployed in either Enterprise LAN or high-density, top-of-rack high-performance enterprise and aggregation applications. The switches also provide a modular Versatile Interface Module (VIM) slot that allows a user to choose an uplink model that is suitable for their needs. The VSP 4900 Series switches run the VOSS operating platform.

The 10/100/1000BASE-T ports on the VSP 4900-48P model can operate in half-duplex mode when operating at 10Mbps or 100Mbps. In addition, this model supports IEEE 802.1AE MACsec.

Management

The switch supports connections using the RJ45 serial console port, the Ethernet management port, or the Micro-USB Type B port to view and manage the switch configuration. For more information on switch connection methods, see [Manage Your Switch](#). For switch connection details, see [Connect to a Management Console](#) on page 55.

After connecting to your switch, it can be flexibly configured and operated through the network or the command-line interface (CLI), either remotely or locally. You can access management functions on the switch using the VOSS operating system through a web-based GUI or generic command-line interface (CLI) client. For more information on switch configuration and operation methods, see [Manage Your Switch](#).



Note

There are also two USB 2.0 Type A ports labeled USB 1 and USB 2.

- They are located on the front panel of the switch. The USB ports can interface with USB storage devices.
- The first USB storage device inserted is mounted and can be used under the VOSS operating system as `/usb`. A second inserted USB storage device is not used until the first one is removed.

Cooling

Each switch is cooled by hot-swappable field replaceable fan modules. The switch supports front-to-back airflow for switch cooling. Switch fans are not responsible for cooling the power supplies; power supplies have integrated cooling fans that operate independently of the switch fan.

For more information about the fan modules used in the switch, see [Fan Modules for Use with Your Switch](#) on page 21.

Power Supplies

Each switch supports two hot-swappable modular AC power supplies. The power supplies provide enough power for the needs of the switch. Power supplies have integrated cooling fans that operate independently of the switch fans for power supply cooling and are not responsible for cooling the switch. The power supplies support front-to-back airflow for power supply cooling.

For more information about the power supplies used in the switch, see [Power Supplies for Use with Your Switch](#) on page 22.

Expansion Modules

The switch supports hardware accessories that expand the capabilities of the switch. Collectively, they are referred to as *expansion modules*. The following expansion modules are compatible with the switch:

Versatile Interface Modules (VIMs)

A VIM is a plug-in expansion card used to add specific types of network ports and features. A VIM can be installed in the switch to provide dedicated high speed ports and flexible uplink capabilities with a single VIM slot.

Solid-State Drives (SSDs)

A solid-state drive is a storage device that uses integrated circuits and flash memory to store data instead of mechanical, spinning platters used by traditional hard disk drives (HDDs). The SSD can be installed in the switch to provide modular storage support.

For more information, see [Expansion Modules for Use with Your Switch](#) on page 26.

Operating Temperatures

All VSP 4900 Series switches support an operating range from 0°C (32°F) to 50°C (122°F).

Feature Licensing

For information about licensing options for VOSS, see *Administering VSP Operating System Software*.

VSP4900-48P Switch Features

The front panel of the ExtremeSwitching VSP4900-48P switch includes:

- 1 = Mode Button and System LEDs
- 2 = USB Micro-B management port
- 3 = 2 x USB Type-A ports
- 4 = 48 x 10/100/1000Mb full/half duplex MACsec capable ports with 802.3at Type 2 PoE (30W)
- 5 = VIM slot (populated)

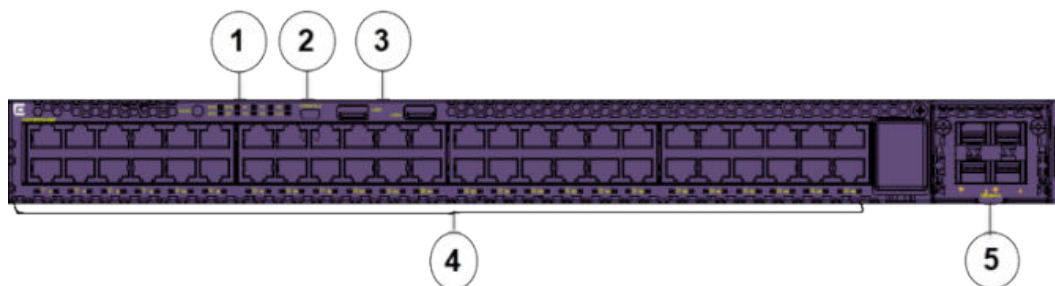


Figure 1: VSP4900-48P Switch Front Panel

The rear panel of the ExtremeSwitching VSP4900-48P switch includes:

- 1 = Grounding lug
- 2 = RJ45 console and management ports
- 3 = SSD slot (unpopulated)
- 4 = 3 x Fan modules
- 5 = 2 x Power supplies

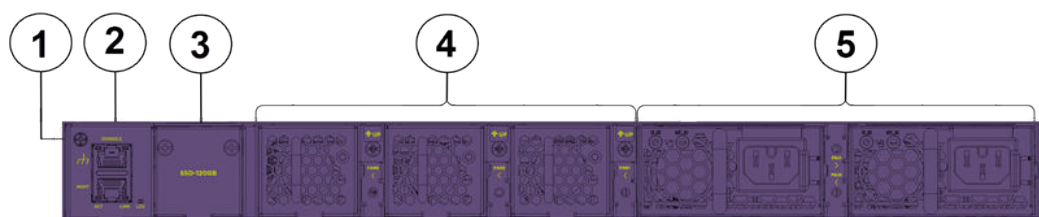


Figure 2: VSP4900-48P Switch Rear Panel

VSP4900-12MXU-12XE Switch Features

The front panel of the ExtremeSwitching VSP4900-12MXU-12XE switch includes:

- 1 = Mode Button and System LEDs
- 2 = USB Micro-B management port
- 3 = 2 x USB Type-A ports
- 4 = 12 x 100Mb/1/2.5/5/10Gb ports with 802.1bt Type 3 PoE (60W)
12 x 1G/10Gb SFP+ LRM and MACsec capable ports
- 5 = VIM slot (unpopulated)

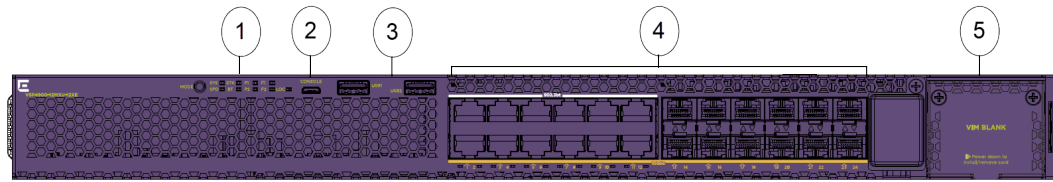


Figure 3: VSP4900-12MXU-12XE Switch Front Panel

The rear panel of the ExtremeSwitching VSP4900 switch includes:

- 1 = Grounding lug
- 2 = RJ45 console and management ports
- 3 = SSD slot (unpopulated)
- 4 = 3 x Fan modules
- 5 = 2 x Power supplies

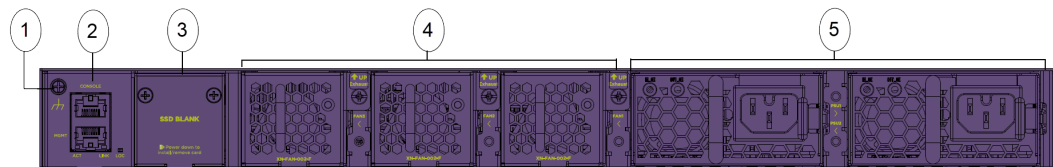


Figure 4: VSP4900-12MXU-12XE Switch Rear Panel

VSP4900-24S Switch Features

The front panel of the ExtremeSwitching VSP4900-24S switch includes:

- 1 = Mode Button and System LEDs
- 2 = USB Micro-B management port
- 3 = 2 x USB Type-A ports
- 4 = 24 x 100/1000Mb SFP ports
- 5 = VIM slot (unpopulated)

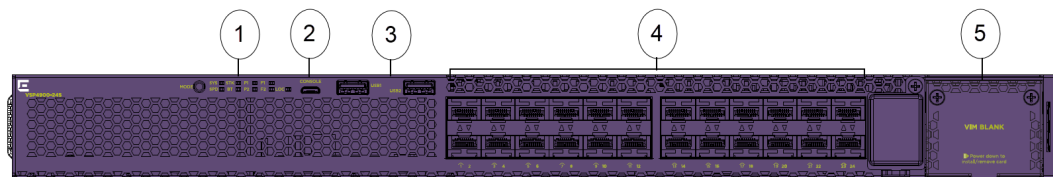


Figure 5: VSP4900-24S Switch Front Panel

The rear panel of the ExtremeSwitching VSP4900 switch includes:

- 1 = Grounding lug
- 2 = RJ45 console and management ports
- 3 = SSD slot (unpopulated)
- 4 = 3 x Fan modules
- 5 = 2 x Power supplies

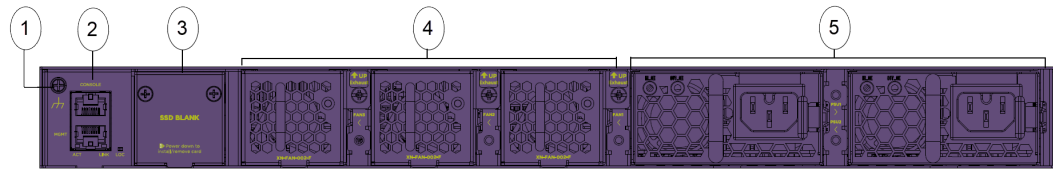


Figure 6: VSP4900-24S Switch Rear Panel

VSP4900-24XE Switch Features

The front panel of the ExtremeSwitching VSP4900-24XE switch includes:

- 1 = Mode Button and System LEDs
- 2 = USB Micro-B management port
- 3 = 2 x USB Type-A ports
- 4 = 24 x 1/10Gb SFP+ LRM and MACsec capable ports
- 5 = VIM slot (unpopulated)

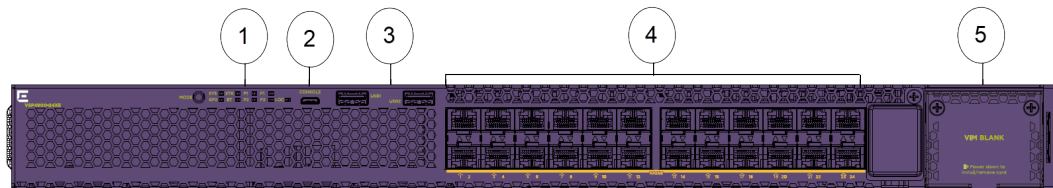


Figure 7: VSP4900-24XE Switch Front Panel

The rear panel of the ExtremeSwitching VSP4900 switch includes:

- 1 = Grounding lug
- 2 = RJ45 console and management ports
- 3 = SSD slot (unpopulated)
- 4 = 3 x Fan modules
- 5 = 2 x Power supplies

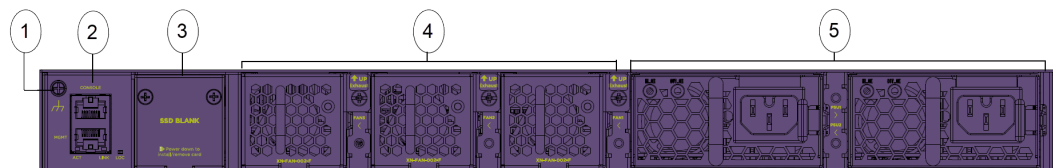
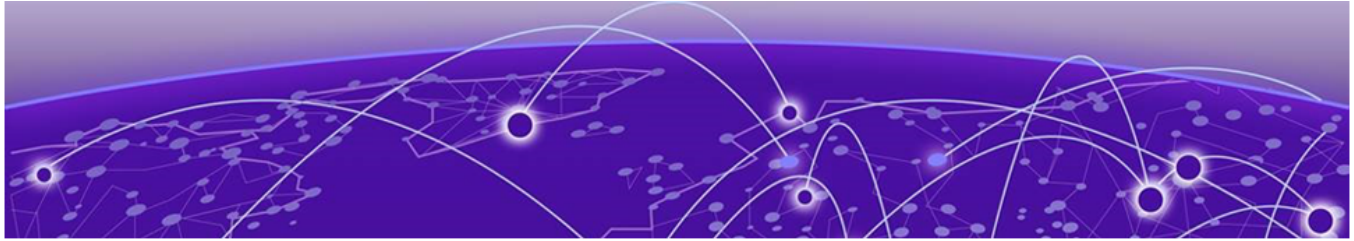


Figure 8: VSP 4900 Switch Rear Panel



Manage Your Switch

Each switch can be flexibly managed through the CLI for manual configuration. The CLI interface can be accessed through Telnet or Secure Shell (SSH2).

Connect to Your Switch

You can use the following methods to connect to the switch.

RJ45 serial console port

Attach an RJ45 to DB9 adapter cable to the RJ45 serial console port on the switch to connect a terminal to manage the switch locally. The RJ45 serial console port is located on the rear panel of the switch.

Ethernet management port

Attach an Ethernet cable to the Ethernet management port to connect the system to an out-of-band management network to manage the switch. An Ethernet management port provides dedicated remote access to the switch using TCP/IP. The switch uses an Ethernet management port only for host operation, not for switching or routing.

Alternatively, attach an Ethernet cable directly to the Ethernet management port and a laptop to view and locally manage the switch configuration.

The Ethernet management port is located on the rear panel of the switch. It supports 100/1000 Mbps speeds.

Micro-USB Type B port

Attach the Micro-USB Type B end of a Micro-USB Type B to USB Type A cable to the Micro-USB Type B port on the switch, and the USB Type A end to a PC or laptop to view and locally manage the switch configuration. The Micro-USB Type B port is located on the front panel of the switch.

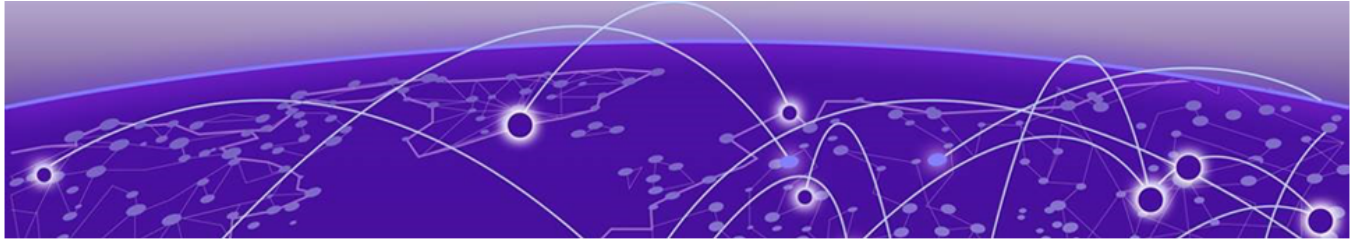
If the Micro-B USB console port is connected, it is selected over the RJ45 serial console port. The Micro-B USB console port disconnects when the switch is rebooted. You can re-connect the port if needed. When the Micro-B USB console is active, any messages from the switch to the client terminal are echoed to both the USB console and the RJ45 serial console port; however, no user input is accepted from the RJ45 serial console port.

Configure and Operate Your Switch

The switch supports flexible configuration and operation through the following methods.

Web-based GUI or generic command-line interface (CLI)

The command line interface (CLI) is a powerful tool for managing and configuring switches and network settings. The CLI interface can be accessed through the web-based GUI, or through Telnet, Secure Shell (SSH2), or SNMP using an SNMP manager. The web server must be enabled in the operating system on the switch in order to use the web-based GUI. For more information on the VOSS, see the *VOSS User Guide* and the *VOSS Command References* for your version of the VOSS operating system.



Fan Modules for Use with Your Switch

[Fan Modules](#) on page 21

The VSP 4900 Series switch is designed to run with replaceable fans that provide the cooling needed for the switch to operate. The switch includes three fan modules. The fan modules in the switch can be removed and replaced without special tools. The switch can continue operating while a fan is being replaced (hot-swap). Switch fans are not responsible for cooling the power supplies; power supplies have integrated cooling fans that operate independently of the switch fan. Fan module slots are located on the rear panel of the switch.

Precautions Specific to Fan Modules



Warning

Be careful not to accidentally insert your fingers into the fan tray while removing it from the chassis. The fan may still be spinning at a high speed.



Caution

Disassembling any part of the power supply and fan assembly voids the warranty and regulatory certifications. There are no user-serviceable parts inside the power supply and fan assembly.



Caution

If you do not install a fan module or a power supply in a slot, you must keep the slot filler panel in place. If you run the chassis with an uncovered slot, the system will overheat.

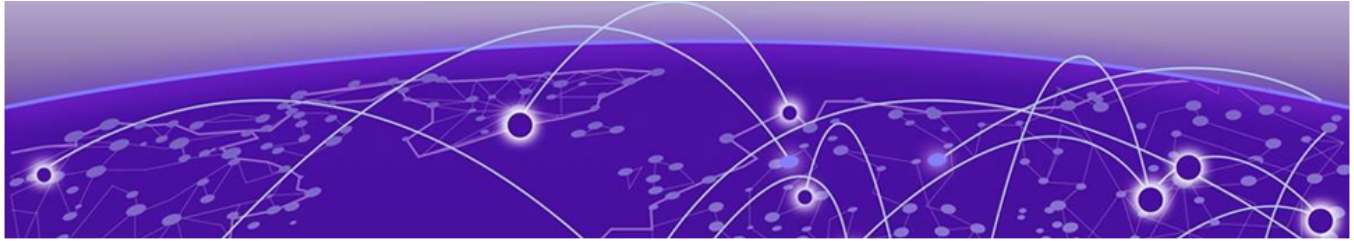
Fan Modules

One replacement fan module option is supported on the switch.

- Part number XN-FAN-002-F provides front-to-back airflow for switch cooling

For information on installing or replacing a fan module, see [Replace Fan Modules](#) on page 67.

LEDs on the front panel of the switch provide information on the unit's operational status. See [Monitor the Switch](#) on page 57 for details.



Power Supplies for Use with Your Switch

[350 W AC Power Supplies](#) on page 23

[715 W AC Power Supplies](#) on page 23

[1100 W AC Power Supplies](#) on page 24

[2000 W AC Power Supply](#) on page 24

The VSP 4900 Series switch is designed to operate with two hot-swappable internal power supply modules that provide all of the power needed for the switch to operate. You can remove one power supply module without interrupting the switch's operation (hot-swap). Power supplies have integrated cooling fans that operate independently of the switch fans for power supply cooling and are not responsible for cooling the switch. Power supply slots are located on the rear panel of the switch.

Precautions Specific to Power Supply Modules



Warning

Make sure you use a power cord displaying the mark of the safety agency that defines the regulations for power cords in your country. The mark is your assurance that the power cord can be used safely with the device.



Warning

If the installation requires a different power cord than the one supplied with the device, make sure you use a power cord displaying the mark of the safety agency that defines the regulations for power cords in your country. The mark is your assurance that the power cord can be used safely with the device.



Caution

Disassembling any part of the power supply and fan assembly voids the warranty and regulatory certifications. There are no user-serviceable parts inside the power supply and fan assembly.



Caution

If you do not install a fan module or a power supply in a slot, you must keep the slot filler panel in place. If you run the chassis with an uncovered slot, the system will overheat.

350 W AC Power Supplies

The 350 W AC power supplies (part numbers XN-ACPWR-350W-FB and 10953) provide front-to-back airflow and are compatible with VSP4900-24S and VSP4900-24XE switches that have the same airflow direction as the power supplies.

The 350 W AC power supply has a (C16) power inlet that requires a (C15) power cord.



Note

AC power input cords are not provided with AC power supplies. You can order an appropriate cord from Extreme Networks or from your local supplier. The power cord must meet the requirements listed in [Power Cord Requirements for AC-Powered Switches and AC Power Supplies](#) on page 85.

The 350 W AC power supply has the status LEDs listed in [Table 4](#).

Table 4: 350 W AC Power Supply LED Status Indications

IN_OK (Green)	OUT_OK (Green or Red)	Description
Off	Off	No AC input power connection or low AC voltage
On	Off	AC input good; output disabled
On	(Red) On	AC input good; output fault
On	(Green) On	AC input good; output good

715 W AC Power Supplies

The 715 W AC power supplies (part numbers XN-ACPWR-715W-FB and 10951) provide front-to-back airflow and are compatible with VSP4900-48P and VSP4900-12MXU-12XE switches that have the same airflow direction as the power supplies.

The 715 W AC power supply has a (C16) power inlet that requires a (C15) power cord.



Note

AC power input cords are not provided with AC power supplies. You can order an appropriate cord from Extreme Networks or from your local supplier. The power cord must meet the requirements listed in [Power Cord Requirements for AC-Powered Switches and AC Power Supplies](#) on page 85.

The 715 W AC power supply has the status LEDs listed in [Table 5](#).

Table 5: 715 W AC Power Supply LED Status Indications

IN_OK (Green)	OUT_OK (Green or Red)	Description
Off	Off	No AC input power connection or low AC voltage.
On	Off	AC input good, 54V output disabled.

Table 5: 715 W AC Power Supply LED Status Indications (continued)

IN_OK (Green)	OUT_OK (Green or Red)	Description
On	(Red) On	AC input good, output (54V) fault.
On	(Green) On	AC input good, DC outputs in spec.

1100 W AC Power Supplies

The 1100 W AC power supplies (part numbers XN-ACPWR-1100W-FB and 10941) provide front-to-back airflow and are compatible with VSP4900-48P and VSP4900-12MXU-12XE switches that have the same airflow direction as the power supplies.

The 1100 W AC power supply has a (C16) power inlet that requires a (C15) power cord.



Note

AC power input cords are not provided with AC power supplies. You can order an appropriate cord from Extreme Networks or from your local supplier. The power cord must meet the requirements listed in [Power Cord Requirements for AC-Powered Switches and AC Power Supplies](#) on page 85.

The 1100 W AC power supply has the status LEDs listed in [Table 6](#).

Table 6: 1100 W AC Power Supply LED Status Indications

IN_OK (Green)	OUT_OK (Green or Red)	Description
Off	Off	No AC input power connection or low AC voltage.
On	Off	AC input good, 54V output disabled.
On	(Red) On	AC input good, output (54V) fault.
On	(Green) On	AC input good, DC outputs in spec.

2000 W AC Power Supply

The 2000 W AC power supplies (part numbers XN-ACPWR-2000W-FB and XN-ACPWR-2000W-F) provide front-to-back airflow and are compatible with VSP4900-48P and VSP4900-12MXU-12XE switches that have the same airflow direction as the power supplies.



Note

In order to obtain 2000W output from this power supply, the PSU must be connected to a 200-240VAC source.

The ExtremeSwitching 2000 W AC power supply has a (C16) power inlet that requires a (C15) power cord.

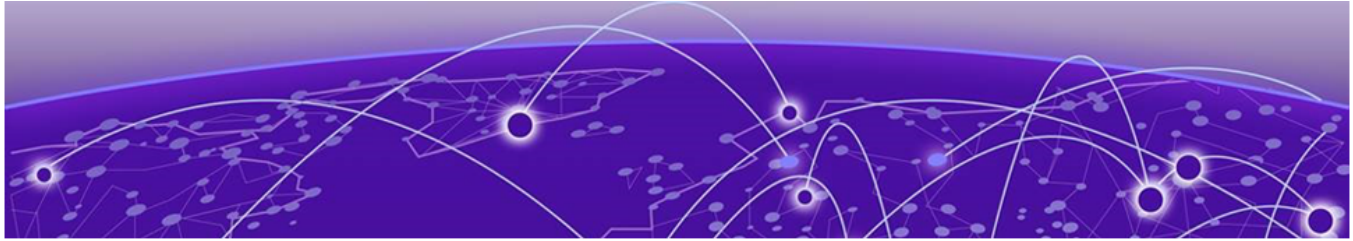
**Note**

AC power input cords are not provided with AC power supplies. You can order an appropriate cord from Extreme Networks or from your local supplier. The power cord must meet the requirements listed in [Power Cord Requirements for AC-Powered Switches and AC Power Supplies](#) on page 85.

The ExtremeSwitching 2000 W AC power supply has the status LEDs listed in [Table 7](#).

Table 7: ExtremeSwitching 2000 W AC Power Supply LED Status Indications

IN_OK (Green)	OUT_OK (Green or Red)	Description
Off	Off	No AC input power connection or low AC voltage.
On	Off	AC input good, 54V output disabled.
On	(Red) On	AC input good, output (54V) fault.
On	(Green) On	AC input good, DC outputs in spec.



Expansion Modules for Use with Your Switch

[Versatile Interface Modules](#) on page 26
[Solid-State Drives](#) on page 34

The switch supports hardware accessories that expand the capabilities of the switch. Collectively, they are referred to as *expansion modules*.

- You can install a versatile interface module (VIM) in the dedicated slot in the front panel of the switch. If no module is installed, the option slot is covered by a blank panel. The VIM provides dedicated 10/25/40G high speed ports.
- You can install a Solid-state Drive (SSD) to provide modular storage support.

[Table 8](#) lists the types of expansion modules and the switch series with which they are compatible.

Table 8: Compatibility of Expansion Modules

Module Type	Name	No. of Ports	Type of Ports
SSD	XN-SSD-001-120	1	Modular 120GB SSD
VIM5	VIM5-4X	4	10GbE SFP+ optical ports
	VIM5-4XE	4	10GbE SFP+ LRM MACsec capable optical ports
	VIM5-2Y	2	25GbE SFP28 optical ports
	VIM5-4Y	4	25GbE SFP28 optical ports
	VIM5-4YE	4	25GbE SFP28 LRM MACsec capable optical ports
	VIM5-2Q	2	40GbE QSFP optical ports

Versatile Interface Modules

You can install a VIM5 versatile interface module in a dedicated slot in the front panel of the ExtremeSwitching VSP 4900 Series switch to provide 10/25/40G dedicated high

speed ports. The front panel of every VSP 4900 switch provides one slot to install the following:

- VIM5-4X versatile interface module that provides four 10-GbE (SFP+) ports.
- VIM5-4XE versatile interface module that provides four 10-GbE (SFP+) ports, LRM/MACsec capable.
- VIM5-2Y versatile interface module that provides two 25-GbE (SFP28) ports.
- VIM5-4Y versatile interface module that provides four 25-GbE (SFP28) ports.
- VIM5-4YE versatile interface module that provides four 25-GbE (SFP28) MACsec capable ports.
- VIM5-2Q versatile interface module that provides two 40-GbE (QSFP) ports.

For 24 and 48-port models, the VIM5 ports are 2/1, 2/2, 2/3, 2/4 depending on the VIM installed.

VIM5s are ordered separately. Each VIM5 label can be found on the bottom side of the device, as seen in the following figure:

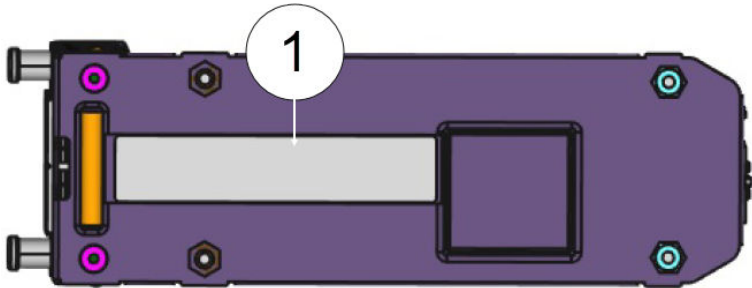


Figure 9: VIM5 Label

1 = VIM5 label

Table 9: VSP 4900 VIM5 Matrix

	VIM5-4X	VIM5-4XE	VIM5-2Y	VIM5-4Y	VIM5-4YE	VIM5-2Q
Usable ports (VSP4900-48P and VSP4900-24S)	4	4	2	2	2	1
Usable ports (VSP4900-24XE and VSP4900-12MXU-12XE)	4	4	2	4	4	2

Table 9: VSP 4900 VIM5 Matrix (continued)

	VIM5-4X	VIM5-4XE	VIM5-2Y	VIM5-4Y	VIM5-4YE	VIM5-2Q
Operational speeds	1Gbps & 10Gbps	1Gbps & 10Gbps	10Gbps & 25Gbps	10Gbps & 25Gbps	10Gbps & 25Gbps	4x10Gbps w/ channelization & 40Gbps
PHY present	No	Yes	Yes	Yes	Yes	No
1000BASE-T & 10GBASE-T	10GBASE-T only	Both	10GBASE-T only	10GBASE-T only	10GBASE-T only	
Mixed speeds	1Gbps & 10Gbps	1Gbps & 10Gbps	Not supported*	Not supported*	Not supported*	
1G Auto-negotiation	Disabled	Enabled				
10G Auto-negotiation	Disabled	Disabled	Disabled	Disabled	Disabled	
25G Auto-negotiation			Disabled	Disabled	Enabled for DAC Disabled for Fiber	
FEC	Not supported	Not supported	Not supported	Not supported	Auto-FEC enabled for DAC and Fiber	Not supported
MACsec	Not supported	128/256bit	Not supported	Not supported	128/256bit	Not supported

* You must set `sys vim-speed` to 10G or 25G for VIM5-2Y and VIM5-4YE. The default is 25G. A reboot is not necessary after setting the speed.

See [Versatile Interface Modules \(VIM5\) Port LEDs](#) on page 59 for VIM5 LED details.

VIM5-4X Versatile Interface Module

The VIM5-4XE versatile interface module provides four 10-GbE (SFP+) ports, LRM/MACsec capable.

For information about the supported optical modules, refer to the most recent version of the [Extreme Optics](#) website.

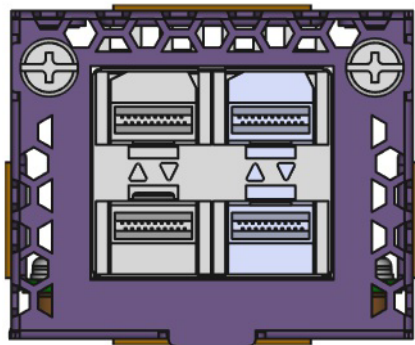


Figure 10: VIM5-4XE Versatile Interface Module

Table 10: Port Numbers for Ports on the VIM5-4XE Module

ExtremeSwitching VSP 4900 port numbers for 24-port switches	ExtremeSwitching VSP 4900 port numbers for 48-port switches
2/1, 2/2, 2/3, 2/4	2/1, 2/2, 2/3, 2/4

VIM5-4XE Versatile Interface Module

The VIM5-4XE versatile interface module provides four 10-GbE (SFP+) ports, LRM/MACsec capable.

For information about the supported optical modules, refer to the most recent version of the [Extreme Optics](#) website.

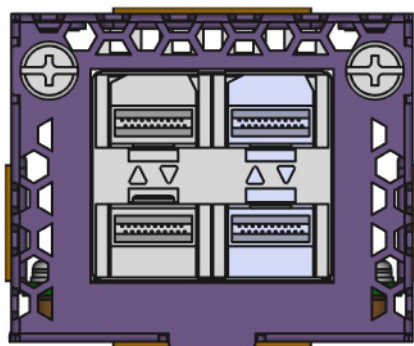


Figure 11: VIM5-4XE Versatile Interface Module

Table 11: Port Numbers for Ports on the VIM5-4XE Module

ExtremeSwitching VSP 4900 port numbers for 24-port switches	ExtremeSwitching VSP 4900 port numbers for 48-port switches
2/1, 2/2, 2/3, 2/4	2/1, 2/2, 2/3, 2/4

VIM5-2Y Versatile Interface Module

The VIM5-2Y versatile interface module provides two 25-GbE (SFP28) ports.

You must set `sys vim-speed` to 10G or 25G for VIM5-2Y. The default is 25G. A reboot is not necessary after setting the speed. For details about the `sys vim-speed` command, see the [Command Line Interface Commands Reference for VOSS](#).

For information about the supported optical modules, refer to the most recent version of the [Extreme Optics](#) website.

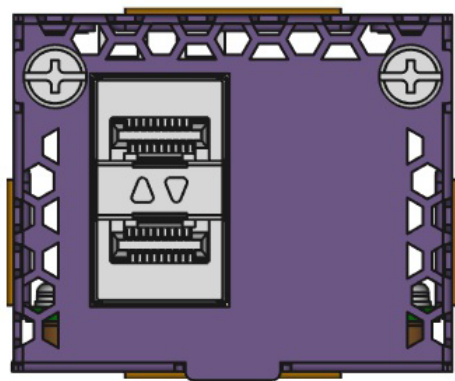


Figure 12: VIM5-2Y Versatile Interface Module

Table 12: Port Numbers for Ports on the VIM5-2Y Module

ExtremeSwitching VSP 4900 port number for 24-port switches	ExtremeSwitching VSP 4900 port numbers for 48-port switches
2/1, 2/1	2/1, 2/1

VIM5-4Y Versatile Interface Module

The VIM5-4Y versatile interface module provides four 25-GbE (SFP28) ports.



Note
For VSP4900-48P and VSP4900-24S, only the first two 25-GbE (SFP28) ports are supported.
The VIM5-4Y can be configured to provide four 10GbE ports using the port partitioning CLI. For details about the `configure ports partition` command, see the [Command Line Interface Commands Reference for VOSS](#).

For information about the supported optical modules, refer to the most recent version of the [Extreme Optics](#) website.

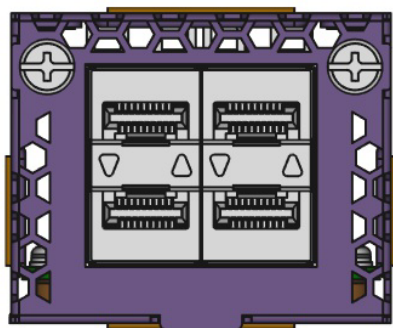


Figure 13: VIM5-4Y Versatile Interface Module

Table 13: Port Numbers for Ports on the VIM5-4Y Module

ExtremeSwitching VSP 4900 port number for 24-port switches	ExtremeSwitching VSP 4900 port number for 48-port switches
25-28	49-52

VIM5-4YE Versatile Interface Module

The VIM5-4YE versatile interface module provides four 25-GbE (SFP28) LRM/MACsec capable ports.



Note

For VSP4900-24S and VSP4900-48P only the first two 25-GbE (SFP28) ports are supported. The second two 25-GbE (SFP28) ports are reserved.

You must set `sys vim-speed` to 10G or 25G for VIM5-4YE. The default is 25G.

A reboot is not necessary after setting the speed. For details about the `sys vim-speed` command, see the [Command Line Interface Commands Reference for VOSS](#).

For information about the supported optical modules, refer to the most recent version of the [Extreme Optics](#) website.

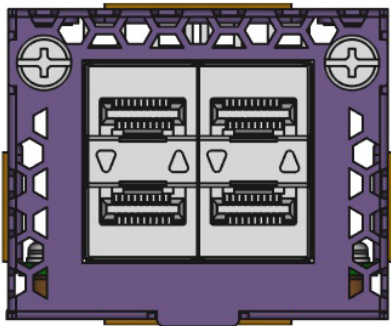


Figure 14: VIM5-4YE Versatile Interface Module

Table 14: Port Numbers for Ports on the VIM5-4YE Module

ExtremeSwitching VSP 4900 port number for VSP4900-24S and VSP4900-48P	ExtremeSwitching VSP 4900 port numbers for VSP4900-24XE, and VSP4900-12MXU-12XE
2/1, 2/2	2/1, 2/2

VIM5-2Q Versatile Interface Module

The VIM5-2Q versatile interface module provides two 40-GbE (QSFP) ports.



Note
For VSP4900-48P and VSP4900-24S, only the first 40-GbE (QSFP) port is supported.

For information about the supported optical modules, refer to the most recent version of the [Extreme Optics](#) website.

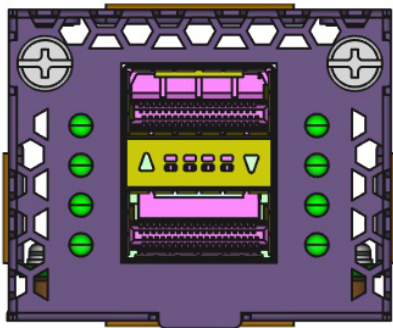


Figure 15: VIM5-2Q Versatile Interface Module

Table 15: Port Numbers for Ports on the VIM5-2Q Module

ExtremeSwitching VSP 4900 port numbers for 24-port models	ExtremeSwitching VSP 4900 port numbers for 48-port models
2/1 in 1x40 mode 2/1, 2/2, 2/3, 2/4 in 4x10 mode	2/1 in 1x40 mode 2/1, 2/2, 2/3, 2/4 in 4x10 mode

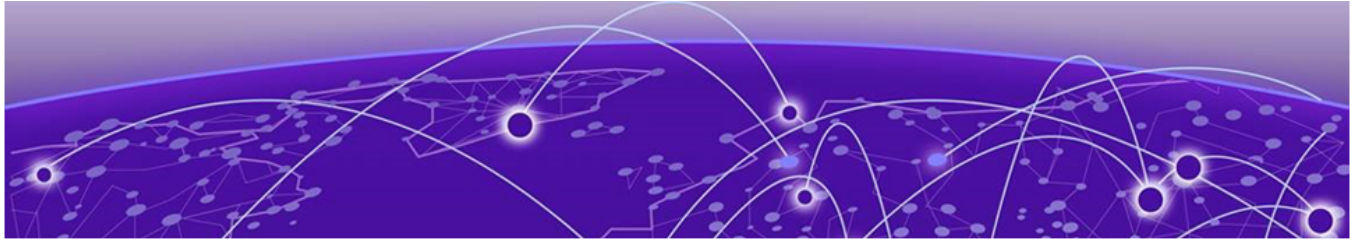
Solid-State Drives

Solid-state Drives (SSD) provide modular storage support. VSP 4900 Series switches accommodate one SSD module using a reserved slot on the rear of the switch, which is supported on VOSS release 8.1.5 and later.

The following SSD module is available for VSP 4900 switches:

Table 16: Available SSD Module

SSD Module	Description	Compatible Switch Models
XN-SSD-001-120	Modular 120GB SSD	VSP4900 (all models)



Site Preparation

- [Plan Your Site](#) on page 35
- [Operating Environment Requirements](#) on page 36
- [Rack Specifications and Recommendations](#) on page 39
- [Evaluate and Meet Cable Requirements](#) on page 41
- [Meet Power Requirements](#) on page 45
- [Follow Applicable Industry Standards](#) on page 47

By carefully planning your site, you can maximize the performance of your existing network and ensure that it is ready to migrate to future networking technologies.

The information in this chapter is intended for the system administrator, network equipment technician, network manager, or facilities manager responsible for installing and managing the network hardware. The chapter assumes a working knowledge of local area network (LAN) operations, and a familiarity with communications protocols that are used on interconnected LANs.

Only qualified service personnel should install, maintain, or remove a switch, chassis, or its components. Qualified service personnel have had appropriate technical training and experience that is necessary to be aware of the hazards to which they are exposed when performing a task and of measures to minimize the danger to themselves or other people.



Note

Before installing or removing any components of the system, and before carrying out any maintenance procedures, read the safety information in the [Technical Specifications](#) on page 73 topic.

Plan Your Site

To install your equipment successfully, you should plan the site carefully. The site planning process has three major parts:

1. Meeting site requirements.

The physical installation site must meet the following requirements for a safe and successful installation:

- Building and electrical code requirements
- Environmental, safety, and thermal requirements for the equipment you plan to install

- Equipment rack requirements
2. Evaluating and meeting cable requirements.

After examining your physical site and verifying that all environment requirements are met, evaluate and compare your existing cable plant with the requirements of the Extreme Networks equipment to determine if you need to install new cables.

3. Meeting power requirements.

To run your equipment safely, you must meet the specific power requirements for each switch and external power supply unit installed in the system.

For power specifications of the switches, see the specific switch listings in [Technical Specifications](#) on page 73.

Operating Environment Requirements

Verify that your site meets all environmental and safety requirements.

Virtually all areas of the United States are regulated by building codes and standards. During the early planning stages of installing or modifying your network, it is important that you develop a thorough understanding of the regulations that pertain to your location and industry.

Meet Building and Electrical Codes

Building and electrical codes vary depending on your location. Comply with all code specifications when planning your site and installing cable. This section lists resources for obtaining additional information.

For information about major building codes, consult the following organization:

International Code Council (ICC)
5203 Leesburg Pike
Falls Church, VA 22041 USA
www.iccsafe.org

The organizations listed in [Table 17](#) are authorities on electrical codes.

Table 17: Authorities on Electrical Codes

Organization	Address	Web Site URL
National Electrical Code (NEC) Classification (USA only) Recognized authority on safe electrical wiring. Federal, state, and local governments use NEC standards to establish their own laws, ordinances, and codes on wiring specifications. The NEC classification is published by the National Fire Protection Association (NFPA).	NFPA 1 Batterymarch Park Quincy, MA 02169 USA	www.nfpa.org/
Underwriters' Laboratory (UL) Independent research and testing laboratory. UL evaluates the performance and capability of electrical wiring and equipment to determine whether they meet certain safety standards when properly used. Acceptance is usually indicated by the words "UL Approved" or "UL Listed."	UL 333 Pfingsten Road Northbrook, IL 60062 USA	www.ul.com
National Electrical Manufacturing Association (NEMA) (USA only) Organization of electrical product manufacturers. Members develop consensus standards for cables, wiring, and electrical components.	NEMA 1300 N. 17th Street Rosslyn, VA 22209 USA	www.nema.org
Electronic Components Industry Association (ECIA) Trade association that develops technical standards, disseminates marketing data, and maintains contact with government agencies in matters relating to the electronics industry.	ECIA 111 Alderman Drive Suite 400 Alpharetta, GA 30005 USA	www.ecianow.org
Federal Communications Commission (FCC) (USA only) Commission that regulates all interstate and foreign electrical communication systems that originate in the United States according to the Communications Act of 1934. The FCC regulates all U.S. telephone and cable systems.	FCC 445 12th Street S.W. Washington, DC 20554 USA	www.fcc.gov

Set Up the Wiring Closet

Be aware of the following recommendations for your wiring closet:

- Make sure that your system is easily accessible for installation and service. See [Rack Specifications and Recommendations](#) on page 39 for more information.
- Use appropriate AC or DC power, power distribution, and grounding for your specific installation.

- Use a vinyl floor covering in your wiring closet. (Concrete floors accumulate dust, and carpets can cause static electricity.)
- Prevent unauthorized access to wiring closets by providing door locks. Install the equipment in a secured, enclosed, and restricted access location, ensuring that only qualified service personnel have access to the equipment.
- Provide adequate overhead lighting for easy maintenance.
- Be sure that each wiring closet has a suitable ground. All equipment racks and equipment installed in the closet should be grounded.
- Be sure that all system environmental requirements are met, such as ambient temperature and humidity.

**Note**

Consult an electrical contractor for commercial building and wiring specifications.

Control the Temperature

Extreme Networks equipment generates a significant amount of heat. It is essential that you provide a temperature-controlled environment for both performance and safety.

Install the equipment only in a temperature- and humidity-controlled indoor area that is free of airborne materials that can conduct electricity. Too much humidity can cause a fire. Too little humidity can produce electrical shock and fire.

Observe these additional thermal recommendations for the location where you plan to install your equipment:

- Ensure that the ventilation in the wiring closet is adequate to maintain a temperature below the maximum operating temperature for the equipment.
- Install a reliable air conditioning and ventilation system.
- Keep the ventilation in the wiring closet running during non-business hours; otherwise, the equipment can overheat.
- Maintain a storage temperature between -40°C (-40°F) and 70°C (158°F).

[Table 18](#) summarizes the behavior of Extreme Networks switches when they experience high operating temperatures.

Safeguards are built into all Extreme Networks switches and power supply units to minimize the risk of fire.

Table 18: Thermal Shutdown and Restart Behavior

Switch Model(s)	Behavior
All switches	When internal system temperatures exceed the thermal shutdown temperature limit (typically about 20°C higher than normal system operating temperatures), the system's power supplies are turned off and the switch shuts down. The system remains in the OFF state until the system has sufficient time to cool and the internal thermal sensor measures a temperature lower than the maximum specified ambient temperature, at which time the system restarts automatically. Alternately, you can restart the system by removing and then restoring all line power to the system. The internal sensor must still measure a system temperature that is lower than the maximum specified ambient temperature, so recovery might not be immediate.

Control the Humidity Level

To maximize equipment life, keep operating humidity between 50% and 70% relative humidity (non-condensing) during typical operation.

The equipment can operate between 5% and 95% relative humidity (non-condensing) for short intervals.

Protect Your System from ESD (Electrostatic Discharge)

Your system must be protected from static electricity or ESD. Take the following measures to ensure optimum system performance:

- Remove materials that can cause electrostatic generation (such as synthetic resins) from the wiring closet.

Check the appropriateness of floor mats and flooring.

- Connect metal chassis, conduit, and other metals to ground using dedicated grounding lines.
- Use electrostatically safe equipment.

If you are working with pluggable interface modules, wear an ESD-preventive wrist strap and connect the metal end to a grounded equipment rack or other source of ground.

Rack Specifications and Recommendations

Racks should conform to conventional standards.

In the United States, use EIA Standard RS-310C: Racks, Panels, and Associated Equipment. In countries other than the United States, use IEC Standard 297. In addition,

verify that your rack meets the basic mechanical, space, and earthquake requirements that are described in this section.

Mechanical Recommendations for the Rack

Use equipment racks that meet the following mechanical recommendations:

- Use an open style, 19-inch rack to facilitate easy maintenance and to provide proper ventilation.
- Use a rack made of steel or aluminum.
- The rack should use the universal mounting rail hole pattern that is identified in IEC Standard 297.
- The rack should have designated earth grounding connections (typically on the base).
- The rack must meet earthquake safety requirements equal to that of the installed chassis.
- The mounting holes should be flush with the rails to accommodate the chassis.
- The rack should support approximately 270 kg (600 lb).

Ground the Rack

The rack must be properly grounded.

Use a rack grounding kit and a ground conductor that is carried back to earth or to another suitable building ground.

At a minimum, follow these guidelines to ground equipment racks to the earth ground:

- CAD weld appropriate wire terminals to building I-beams or earth ground rods.
- For a DC-powered switch, use a minimum 6 AWG stranded copper wire for grounding.

AC-powered switches do not need separate chassis grounding.

- Position the earth ground as close to the equipment rack as possible to maintain the shortest wiring distance possible.
- Use a ground impedance tester or micro-ohm meter to test the quality of earth ground connection at the chassis. This will ensure good grounding between the chassis, rack, and earth ground.



Note

Because building codes vary worldwide, consult an electrical contractor to ensure proper equipment grounding for your specific installation.

Provide Adequate Space for the Rack

Provide enough space in front of and behind the switch so that you can service it easily.

Allow a minimum of 48 inches (122 cm) in front of the rack and 30 inches (76 cm) behind the rack. When using a relay (two-post) rack, provide a minimum of 24 inches (61 cm) of space behind the mounted equipment. Extra room on each side is optional.

**Warning**

Extreme Networks switches do not have a switch for turning power to the unit on and off. For systems using an AC power supply, power to the switch is disconnected by removing the wall plug from the electrical outlet.

Be sure that cables and other equipment do not block the switch's air intake or outflow.

Depending on other conditions in the equipment room, it may be possible to install the switches closer to each other; consult your Extreme Networks Customer Support representative for guidance.

Secure the Rack

The rack should be attached to the wiring closet floor with 9.5 mm (3/8 in) lag screws or equivalent hardware. The floor under the rack should be level within 5 mm (3/16 in). Use a floor-leveling cement compound if necessary or bolt the racks to the floor as shown.

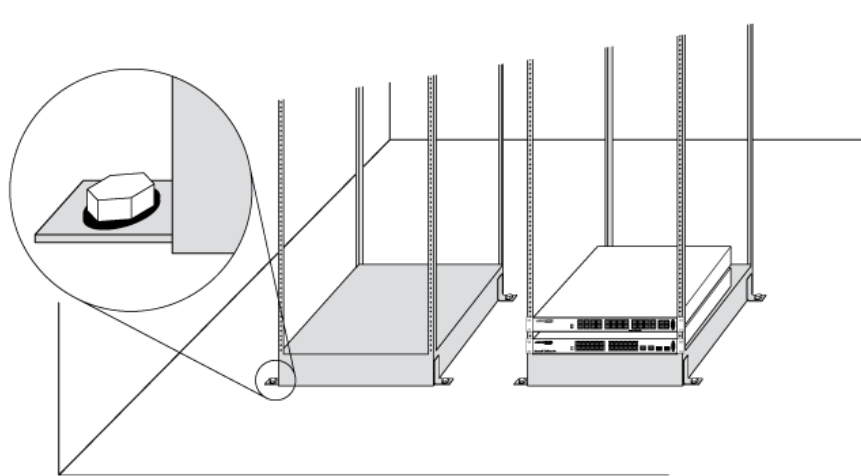


Figure 16: Properly Secured Rack

Brace open equipment racks if the channel thickness is less than 6.4 mm (1/4 in).

Evaluate and Meet Cable Requirements

Use professional consultants for site planning and cabling.

The Building Industry Consulting Service International (BICSI) Registered Communications Distribution Designer (RCDD), which is globally recognized as a standard in site planning and cabling, can be used.

For information, visit www.bicsi.org.

Label Cables and Keep Accurate Records

A reliable cable labeling system is essential when planning and installing a network.

Keeping accurate records helps you to:

- Relocate devices easily.
- Make changes quickly.
- Isolate faults in the distribution system.
- Locate the opposite end of any cable.
- Know the types of network devices that your cabling infrastructure can support.

Follow these guidelines when setting up a cable labeling system suitable for your installation:

- Identify cables by securely attaching labels to all cable ends.
- Assign a unique block of sequential numbers to the group of cables that run between each pair of wiring closets.
- Assign a unique identification number to each equipment rack.
- Identify all wiring closets by labeling the front panel of your Extreme Networks equipment and other hardware.
- Keep accurate and current cable identification records.
- Post records near each equipment rack. For each cable drop, include information about the cable source, destination, and jumper location.

Install Cable

When you connect cable to your network equipment, keep the following things in mind.

- Examine cable for cuts, bends, and nicks.
- Support cable using a cable manager that is mounted above connectors to avoid unnecessary weight on the cable bundles.
- Use cable managers to route cable bundles to the left and right of the network equipment to maximize accessibility to the connectors.
- Provide enough slack, approximately 5 to 7.5 cm (2 to 3 in), to provide proper strain relief as shown in [Figure 17](#) on page 43.
- Bundle cable using hook-and-loop straps to avoid injuring cables.
- If you build your own cable, be sure that connectors are properly crimped.
- When installing a patch panel using twisted pair wiring, untwist no more than 2.5 cm (1 in) of the cable to avoid radio frequency (RF) interference.
- Discharge the RJ45 Ethernet cable before plugging it into a port on the switch.



Caution

Unshielded twisted pair (UTP) cable can build up electrostatic charges when being pulled into a new installation. Before connecting any category 5 UTP cable to the switch, discharge ESD from the cable by plugging the RJ45 connector into a LAN static discharge device or use an equivalent method.

- Use plenum-rated cable when it is necessary for safety and fire rating requirements. Consult your local building codes to determine when it is appropriate to use plenum-rated cable, or refer to IEC standard 850.
- Keep all ports and connectors free of dust.

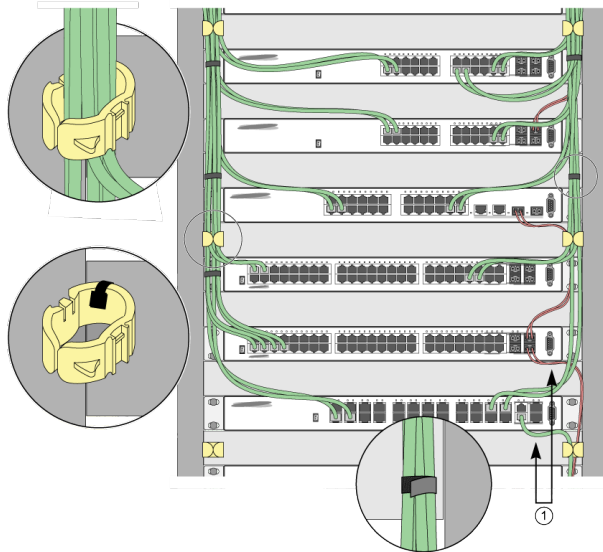


Figure 17: Properly Installed and Bundled Cable

1 = Ensure adequate slack and bend radius

Handle Fiber Optic Cable

Fiber optic cable must be handled carefully during installation.

Every cable has a minimum bend radius, and fibers will be damaged if the cables are bent too sharply. It is also important not to stretch the cable during installation. Ensure that the bend radius for fiber optic cables is equal to at least 5 cm (2 in) for each 90-degree turn as shown in [Figure 18](#).



Note

Kinks and sharp bends can destroy or impair the cable's ability to convey light pulses accurately from one end of the cable to the other. Use care in dressing the optical fiber cables: provide satisfactory strain relief to support the cable and maintain an adequate bend radius at all cable turns, particularly where the cable connects to the I/O module.

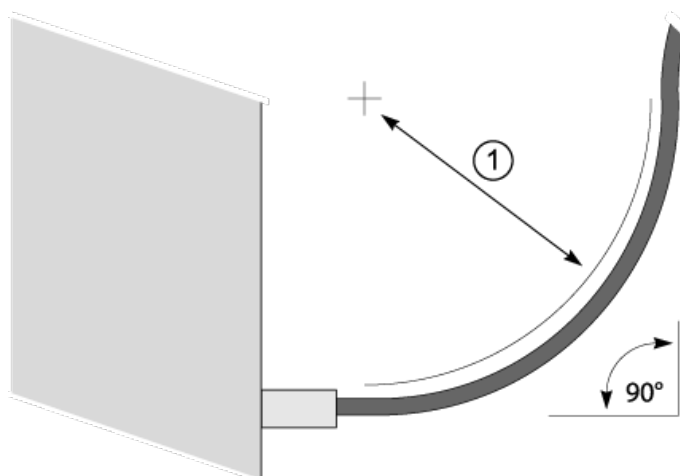


Figure 18: Bend Radius for Fiber Optic Cable

1 = Minimum 5 cm (2 in) radius in 90° bend

Cable Distances and Types

Refer to the [Extreme Optics](#) website for descriptions of optics and cables, as well as a complete list of supported cable lengths, and a list of the cable types that are compatible with your equipment.

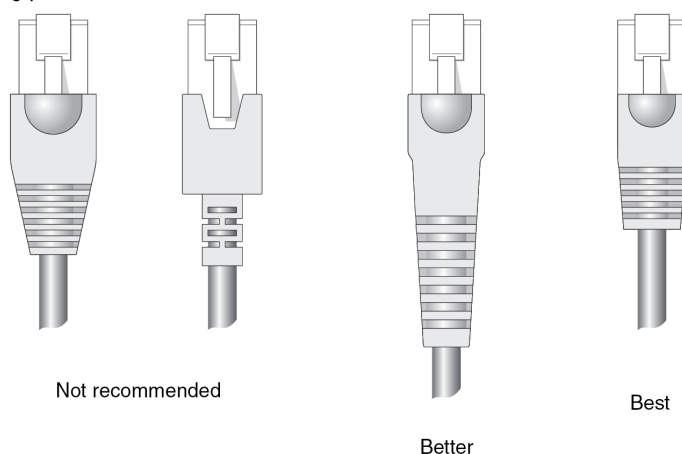
Use RJ45 Connector Jackets

Use RJ45 cable with connector jackets that are flush with the connector or that have connectors with a no-snag feature.

Using cable with jackets that are wider than the connectors can cause:

- Connectors that are not properly aligned with the port.
- Crowded cable installation, which can cause connectors to pop out of the port.

[Figure 19](#) shows examples of recommended and non-recommended connector jacket types.



SPQ_001

Figure 19: RJ45 Connector Jacket Types

Prevent Radio Frequency Interference (RFI)

If you use UTP cabling in an installation, take precautions to avoid radio frequency (RF) interference.

RF interference can cause degradation of signal quality, and, in an Ethernet network environment, can cause excessive collisions, loss of link status, or other physical layer problems that can lead to poor performance or loss of communication.

To prevent RF interference, avoid the following situations:

- Attaching UTP cable to AC power cables
- Routing UTP cable near antennas, such as a ham radio antenna
- Routing UTP cable near equipment that could exhibit RF interference, such as ARC welding equipment
- Routing UTP cable near electrical motors that contain coils
- Routing UTP cable near air conditioner units
- Routing UTP cable near electrical transformers

In areas or applications where these situations cannot be avoided, use fiber optic cabling or shielded twisted pair cabling.

Meet Power Requirements

Observe the following requirements and precautions for powering your hardware.

Power Supply Requirements

Follow these recommendations when you plan power supply connections for your equipment:

- Place the equipment in an area that accommodates the power consumption and component heat dissipation specifications.
- Be sure that your power supply meets the site DC power or AC power requirements of the network equipment.
- When you connect power to installed equipment, do not make this connection through an extension cord or power strip.
- If your switch includes more than one power supply, connect each power supply to a different, independent power source.

If a power source fails, it will affect only the switch power supply to which it is connected. If all switch power supplies are connected to a single power source, the entire switch is vulnerable to a power source failure.

- In regions that are susceptible to electrical storms, the best practice is to plug your system into a surge suppressor.

For detailed power specifications for your equipment, see [Technical Specifications](#) on page 73.

Power Cord Requirements

Most Extreme Networks switches do not ship with power cords. Visit www.extremenetworks.com/product/powercords/ for information on selecting and purchasing the correct power cords for use with specific Extreme Networks equipment. The web page provides specifications for power cords in each country so that you can purchase cords locally.

UPS (Uninterruptible Power Supply) Requirements

A UPS (uninterruptible power supply) is a device that sits between a power supply (such as a wall outlet) and a device (such as a switch) to prevent outages, sags, surges, and bad harmonics from adversely affecting the performance of the device.

A UPS traditionally can perform the following functions:

- Absorb relatively small power surges.
- Smooth out noisy power sources.
- Continue to provide power to equipment during line sags.
- Provide power for a period of time after a blackout has occurred.

In addition, some UPS devices or UPS-plus-software combinations provide the following functions:

- Automatically shut down equipment during long power outages.
- Monitor and log power supply status.
- Display the voltage (current draw) of the equipment.
- Restart equipment after a long power outage.
- Display the voltage currently on the line.
- Provide alarms on certain error conditions.
- Provide short-circuit protection.

Select a UPS

To determine UPS requirements for your switch, answer these questions:

- What are the amperage requirements?
- What is the longest potential time period that the UPS would be required to supply backup power?
- Where will the UPS be installed?
- What is the maximum transition time that the installation will allow? (See [Provide a Suitable UPS Transition Time](#) on page 47.)

**Note**

Use a UPS that provides online protection.

Calculate Volt-Amperage Requirements

To determine the size of UPS that you need:

1. Locate the voltage and amperage requirements for each piece of equipment.

These numbers are usually found on a sticker on the back or bottom of your equipment.

2. Multiply the numbers together to get Volt-Amperes (VA):

$VA = \text{Volts} \times \text{Amperes}$

3. Add the VA from all the pieces of equipment together to find the total VA requirement.

To determine the minimum volt-ampere requirements for your UPS, add 30% to the total.

Provide a Suitable UPS Transition Time

UPS transition time is the time required for the UPS to change from providing AC power derived from the utility (or mains) supply to providing AC power derived from the battery backup. UPS transition time is sometimes called *UPS transfer time*.

UPS transition times vary between UPS models and implementations, but shorter transition times are preferred. For Extreme Networks stacking products, a UPS transition time of 20 milliseconds or less ensures optimum performance and minimizes service interruptions.

For high-availability and fault-tolerant installations in which the switches use redundant power supply units (PSUs), ensure that each PSU in a switch is connected to a different UPS and that each UPS is powered by an independent AC supply. This will prevent service interruptions when a power source is lost, or when a UPS unit fails. (Note that a single, appropriately sized UPS can power PSUs in multiple switches. The recommendation is simply that for any given switch, the two PSUs should be connected to different UPS units.)

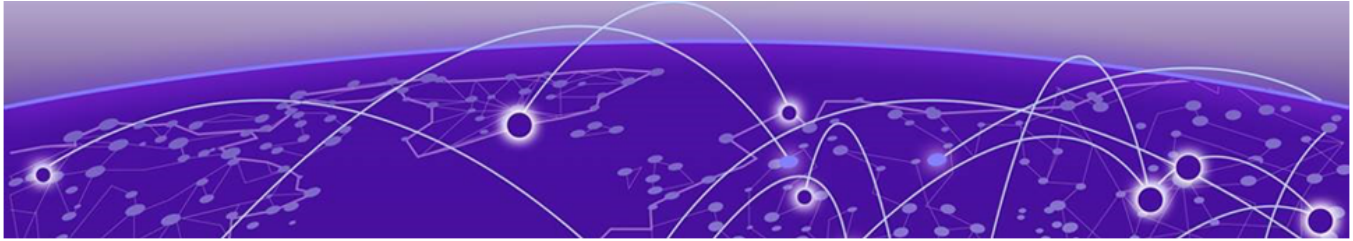
Follow Applicable Industry Standards

Always follow applicable industry standards.

For more information, see the following ANSI/TIA/EIA standards:

- ANSI/TIA/EIA-568-A—the six subsystems of a structured cabling system
- ANSI/TIA/EIA-569-A—design considerations
- ANSI/TIA/EIA-606—cabling system administration
- ANSI/TIA/EIA-607—commercial building grounding and bonding requirements

You can access these standards at: or .



Install Your Switch

- [Safety Considerations for Installation](#) on page 49
- [What You Will Need for the Installation](#) on page 49
- [Attach the Switch to a Rack or a Cabinet](#) on page 50
- [Install Expansion Modules](#) on page 52
- [Install Optional Components](#) on page 52
- [Install Internal Power Supplies](#) on page 53
- [Connect Network Interface Cables](#) on page 53
- [Turn on the Switch](#) on page 53

Before you attempt to install or remove an Extreme Networks switch, read the precautions in [Safety Considerations for Installation](#) on page 49.

Extreme Networks switches fit into standard 19-inch equipment racks.

A four-post rack-mounting kit is provided with the switch. A two-post kit can be ordered separately.

The installation process includes the following tasks:

Table 19: Switch Installation Tasks

Step	Procedure	Description
1	What You Will Need for the Installation on page 49	Prepare to install the switch
2	Attach the Switch to a Rack or a Cabinet on page 50	Install the switch in the rack.
3	Install Expansion Modules on page 52	Install expansion modules.
4	Install Optional Components on page 52	Install optional components: optical transceivers and cables.
5	Install Internal Power Supplies on page 53	Install one or two power supplies if your switch does not come with an installed internal power supply.
6	Connect Network Interface Cables on page 53	Connect network interface cables.

Table 19: Switch Installation Tasks (continued)

Step	Procedure	Description
7	Turn on the Switch on page 53	Power up the switch.
8	Activate and Verify the Switch on page 55	Perform initial network connection and configuration.

Safety Considerations for Installation

Read the information in this chapter thoroughly before you attempt to install or remove an Extreme Networks switch.

Ensure that proper ESD (electrostatic discharge) controls are in use before switch maintenance is performed. This includes but is not limited to wrist straps that are grounded to the switch housing and earth grounds.



Warning

Connect the chassis ground wire **before** you connect any power cables.
Disconnect the ground wire **after** you disconnect all power cables.

Take care to load the equipment rack so that it is not top-heavy. Start installing equipment at the bottom of the rack and work up.

Do not cover vents that would restrict airflow.



Note

See [Safety and Regulatory Information](#) for additional safety and regulatory information. See [Technical Specifications](#) on page 73 for additional information regarding regulatory compliance certifications.

What You Will Need for the Installation

Ensure that you have followed the guidance in [Site Preparation](#) on page 35, and ensure that you have the appropriate people and tools on hand.

Installing Extreme Networks switches is easiest when there are two people to maneuver the switch and attach mounting hardware.

Provide enough space in front of and behind the switch so that you can service it easily. Ensure that a minimum of 122 cm (48 in) in front of the rack and 76 cm (30 in) behind the rack.

If your switch has internal power supplies, make sure they have the same airflow direction as the fans in the switch.

Check the *Quick Reference Guide* for your switch to see what hardware is provided in the switch packaging. Most Extreme Networks switches come with the following hardware:

- Two rack mounting brackets (ears) adaptable for either a front-mount or mid-mount installation.
- Two long mounting brackets (rails) or slider kits for mounting in a four-post installation.
- Screws for attaching mounting hardware to the switch housing.

You need the following additional tools and equipment. These are not provided with your switch:

- Rack mounting screws: eight for a four-post installation; four for other installations. The size of the screws will vary based on the rack system you are using.
- Screwdriver for securing the rack mounting screws.
- #2 Phillips magnetic screwdriver to attach bracket screws that are provided with the switch.
- AC power cord. For switches with removable AC power supplies, a separate power cord is needed for each installed power supply. The cord must meet the requirements listed in [Power Cord Requirements for AC-Powered Switches and AC Power Supplies](#) on page 85.
- ESD-preventive wrist strap for installing optional ports at the back of the switch.

Attach the Switch to a Rack or a Cabinet

To attach a switch to a four-post rack or a cabinet, follow these steps.

Take care to load the rack so that it is not top-heavy. Start installing equipment at the bottom and work up.

1. Attach a rack ear to one side of the switch, screwing it into the holes so that the flange (ear) is flush with the front of the switch for a front mount.

If you are mid-mounting the switch, set the flange toward the back of the switch.

The following figures illustrate how to attach the brackets for two common mounting options.

- [Figure 20](#) shows a mid-mount configuration using a short mounting bracket.
- [Figure 21](#) shows a front-mount configuration using a short mounting bracket.

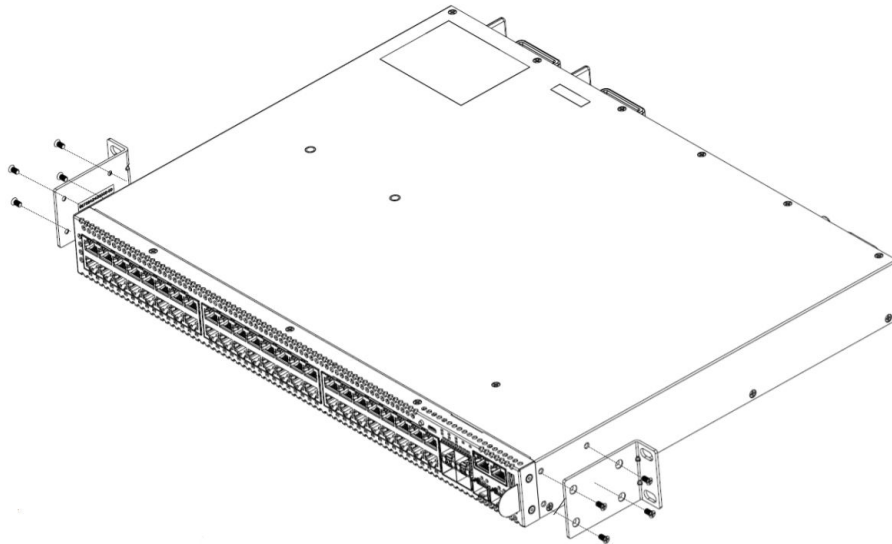


Figure 20: Mid-Mount: Attaching Short Mounting Brackets

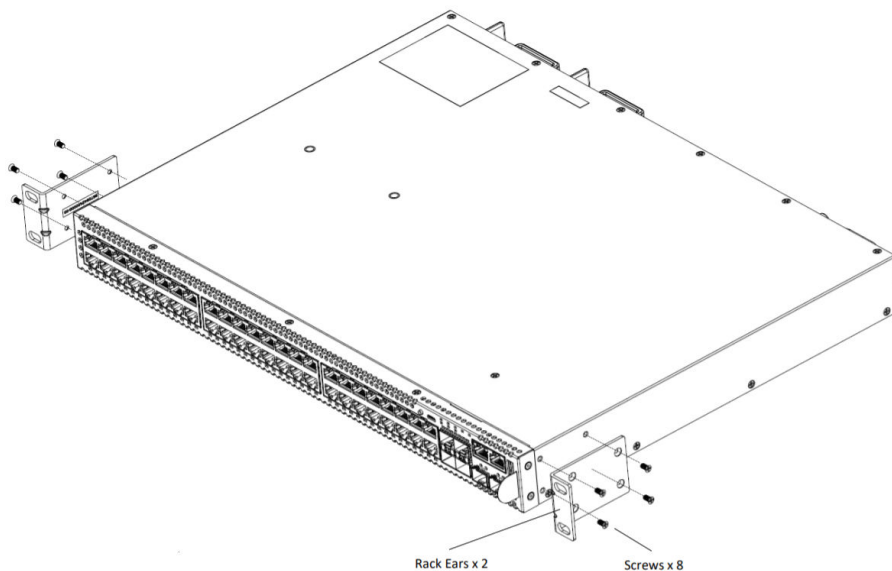


Figure 21: Front Mount: Attaching Short Mounting Brackets

2. Attach the other rack ear to the other side.
3. Attach the rack rails to both sides of the switch using rack screws (rack screws provided).
4. Attach the rack ears to the front rack posts, using the screws (rack post screws not provided).
5. Slide the rack rails into the rack ears on both sides, and adjust them to the appropriate rack depth.

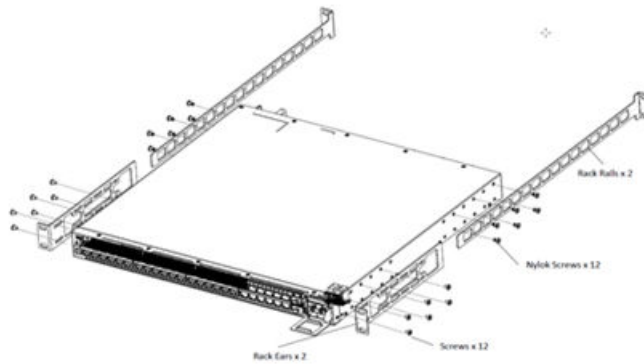


Figure 22: Attaching the Side Rails

6. Attach the rack rails to the rear rack posts, using the rack screws (not provided).
7. If a grounding lug is present, ground the switch.
 - a. At one end of the wire, strip the insulation to expose 1/2 inch (12 mm) of bare wire.
 - b. Identify the grounding lug on the back of the switch.
 - c. Insert the stripped wire into the grounding lug.
 - d. Tighten the retaining screw with a straight-tip torque screwdriver to 20 in-lb (2.25 N m).
 - e. Connect the other end of the wire to a known reliable earth ground point at your site.

Install Expansion Modules

The switch supports hardware accessories that expand the capabilities of the switch. Collectively, they are referred to as *expansion modules*. The VSP 4900 Series supports versatile interface modules (VIMs) and solid-state drives (SSDs). For installation instructions, see [Replace Expansion Modules](#) on page 68.

Install Optional Components

Extreme Networks switches support the use of pluggable transceivers and cables in the SFP, SFP+, SFP28, QSFP-DD, QSFP+, and QSFP28 formats.

For a list of the optical components supported with Extreme Networks devices, see the [Extreme Optics](#) website.

Pluggable Transceiver Modules

Extreme Networks offers several optical transceiver modules for transmitting and receiving data over optical fiber rather than through electrical wires.

Optical Cables

Direct-attach copper and fiber cables provide connections between populated SFP, SFP+, SFP28, QSFP-DD, QSFP+, and QSFP28 ports.

Install Internal Power Supplies

If your switch does not come with an installed power supply, you can install one or two power supplies. All installed power supplies must blow air in the same direction and must match the airflow direction of the installed fan modules. VSP 4900 Series switches are only available with front-to-back airflow.

For installation instructions, see [Replace Power Supplies](#) on page 63.

Connect Network Interface Cables

Use the appropriate type of cable to connect the ports of your switch to another switch or router.

Cable Type	Maximum Distance
CAT5E	55 meters
CAT6	55 meters
CAT6A	100 meters

Working carefully, one port at a time, do the following:

1. Verify that you have identified the correct cable for the port.
2. Use an alcohol wipe or other appropriate cleaning agent to clean the cable connectors; make sure they are free of dust, oil, and other contaminants.
3. If you are using optical fiber cable, align the transmit (Tx) and receive (Rx) connectors with the correct corresponding connectors on the switch or the I/O module.
4. Press the cable connectors into their mating connectors on the switch or I/O module until the cable connector is firmly seated.
5. Repeat the preceding steps for the remaining cables on this or other switches or I/O modules.
6. Dress and secure the cable bundle to provide appropriate strain relief and protection against bends and kinks.

Turn on the Switch

Use the following instructions to turn on the switch



Note

The switch does not have a power button, so connecting the power cable at both ends turns the switch on.

Connect AC Power

An AC power cord is not included with the AC power supply. You can purchase AC power cords for use in the US and Canada from Extreme Networks or from your local supplier. The cord must meet the requirements listed in [Power Cord Requirements for AC-Powered Switches and AC Power Supplies](#) on page 85.

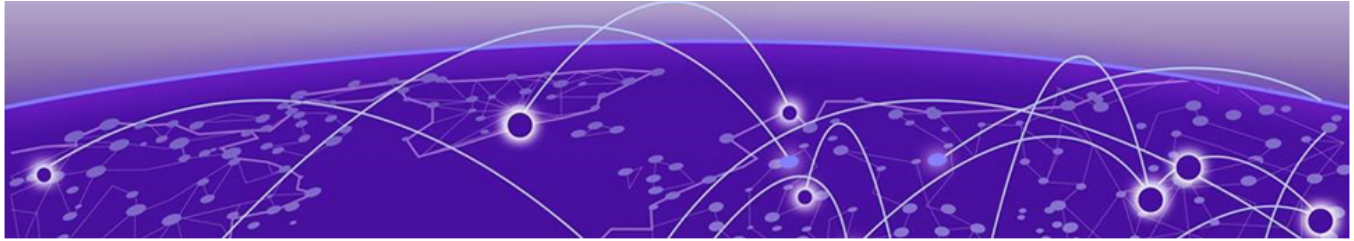
To turn on the switch, connect one end of the power cord to the AC power input socket on the device and connect the other end to an AC power outlet.

**Note**

The grounding connection in the power receptacle and in the power cord properly ground the power supply and extend that grounding to the switch.

If the power supply LEDs do not turn green, refer to [Power Supplies for Use with Your Switch](#) on page 22 for troubleshooting information.

When the power supply LED has turned green, follow the instructions in [Activate and Verify the Switch](#) on page 55.



Activate and Verify the Switch

[Connect to a Management Console](#) on page 55

[Configure the Switch for Use](#) on page 55

After you have installed your Extreme Networks switch in the rack, installed all required and optional components, connected network cables, and powered the switch on, use the instructions in the following topics to configure the software on the switch and prepare it for use.

Check [ExtremeCloud Hardware Support Matrices](#) to see what switch models can be managed with ExtremeCloud™. If your switch is entitled for management by ExtremeCloud, you can optionally use the installation instructions at [ExtremeCloud Quick Reference](#).

Otherwise, follow the instructions in the following topics.

Connect to a Management Console

Connect each switch's serial console interface (an RJ45 jack) to a PC or terminal. The PC or terminal will serve as the management console, used to monitor and configure the switch.

The default communication protocol settings for the serial console interface are:

- Baud rate: 115200
- Data bits: 8
- Stop bit: 1
- Parity: None
- Flow control: None

Configure the Switch for Use

After your switch is connected to power and completes its power-on self-tests, it is operational. Before logging in, verify that the switch LEDs are on (solid green or blinking green) and that it is connected to a management console as described in [Connect to a Management Console](#) on page 55.

To perform the initial login and complete initial configuration tasks, follow these steps.

1. Using a terminal emulator such as PuTTY or TeraTerm, connect to the switch using the serial port connection.

Be sure that your serial connection is set properly:

- Baud rate: 115200
 - Data bits: 8
 - Stop bit: 1
2. Press **[Enter]** one or more times until you see the login prompt.
 3. At the login prompt, log in using the default user name `rwa`.

For example:

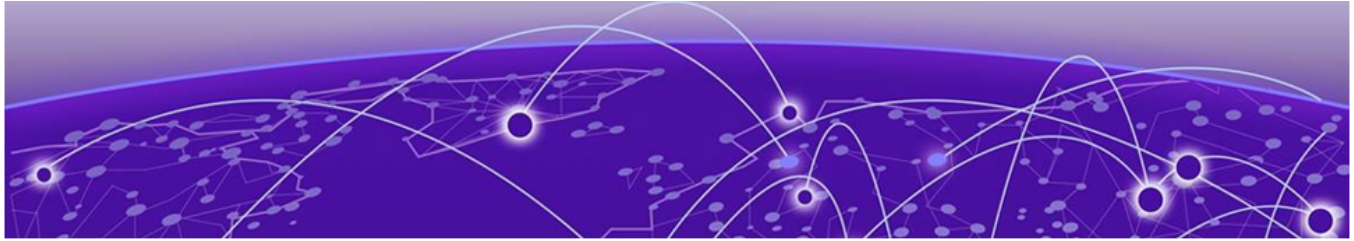
```
login: rwa
```

When prompted for the password, enter `rwa`.

When you are logged in with the role-based authentication level of `rwa`, you can configure the login and password values for the other role-based authentication levels. For details, see *Quick Start Configuration for VOSS*.

4. Follow the steps for provisioning and verifying the switch in *Quick Start Configuration for VOSS*.

The switch is ready for use.



Monitor the Switch

[System Status LEDs](#) on page 57

[Versatile Interface Modules \(VIM5\) Port LEDs](#) on page 59

The following topics help you monitor the status of the switch as it is running.

System Status LEDs

System status LEDs are located on the panel front of the switch. The following table describes the colors and the states for the LEDs.

Table 20: VSP 4900 Series **Port LEDs**

LED	Color/State	Port State
SYStem status LED (Legacy MGMT function)	Slow blinking green	POST Passed, normal operation, blinks on standalone switch, stack master, and backup nodes in a stack; off for standby nodes in a stack
	Blinking green	POST in progress
	Blinking amber	POST failed or overheat
PSU status LEDs P1/P2	Solid green	Power On
	Off	Power off and no power attached
	Blinking amber	Power supply failures
Fan status LEDS (F1, F2 and F3)	Solid green	Normal operation
	Blinking amber	Fan failure
	Amber	Fan absent
Bluetooth Status LED (BT)	Blinking green	Bluetooth pairing in progress
	Solid green	Bluetooth connected
Locator LED (LOC)	Blinking blue	Locator function
Ethernet Port 1-24 or 1-48		
VIM5 Port 25-32 or 49-56		

Port LEDs can display in two different modes: SYS and SPD. The Mode button cycles through the two display modes. In the default SYS mode, SPD is off. The port LEDs enter SPD display mode, indicated by the SPD LED, after pressing the Mode button one

time. SPD mode helps to determine the operational speed of a port. SPD display mode expires after 30 seconds, and the display mode reverts back to the default SYS mode.



Figure 23: VSP 4900 Series **Mode and System Status LEDs**



Note

Front-panel PoE ports use Amber to indicate PoE states.

Port LEDs in Default (SYS) Mode

In the default SYS mode, SPD is OFF, and the port status displays behavior for link, traffic, and POE as described in the following table:

Table 21: Port LEDs in SYS Mode (default)

Color/State	Meaning
Solid green	Link is OK; port is not powered
Solid amber	Link is OK; port is powered; no traffic
Blinking green	Link is OK and transmitting packets; port is not powered
Blinking amber	Link is OK and transmitting packets; port is powered
Slow blinking amber	No link, or disabled port; port is powered
Alternating amber and green	Port has a power fault
Slow blinking green	Admin disabled and no power
Off	Port is not powered, has no link, or is disabled

Port LEDs in SPD Mode

After one press of the Mode button (see [Figure 23](#) on page 58), the port LEDs enter the SPD display mode, indicated by the SPD LED. SPD mode is used to help determine the

operational speed of a port. Color and blink pattern indicate speeds, as referenced by the following table:

Table 22: Port LEDs in SPD Mode

Color/State	Speed
Blinking amber	2.5Mbps
Slow blinking green	5Mbps
Solid green	10Mbps
Blinking green	100Mbps
Solid amber	1000Mbps
Solid green	10Gbps
Blinking amber	25Gbps
Blinking green	40Gbps

Versatile Interface Modules (VIM5) Port LEDs

There are two supported modes for ExtremeSwitching VIM5 port LEDs:

- SYS - default, use normal port LED behavior for link, traffic, and PoE
- SPD – use the port LEDs to indicate operational speed

VIM5 Port LEDs in Default (SYS) Mode

In the default SYS mode, SPD is OFF, and the port status displays behavior for link, traffic, and PoE as described in .

Table 23: VIM5 Port LEDs in SYS Mode (default)

Color/State	Meaning
Solid green	Link is OK; port is not powered
Blinking green	Link is OK and transmitting packets; port is not powered
Slow blinking green	Port is admin disabled
Off	Port is not powered, has no link

VIM5 Port LEDs in SPD Mode

SPD mode is used to help determine the operational speed of a port. Color and blink pattern indicate speeds, as referenced by [Table 24](#):

Table 24: VIM5 Port LEDs in SPD Mode

Color/State	Speed
Solid green	10Gbps
Blinking green	40Gbps

Table 24: VIM5 Port LEDs in SPD Mode (continued)

Color/State	Speed
Solid amber	1Gbps
Blinking amber	25Gbps



Note

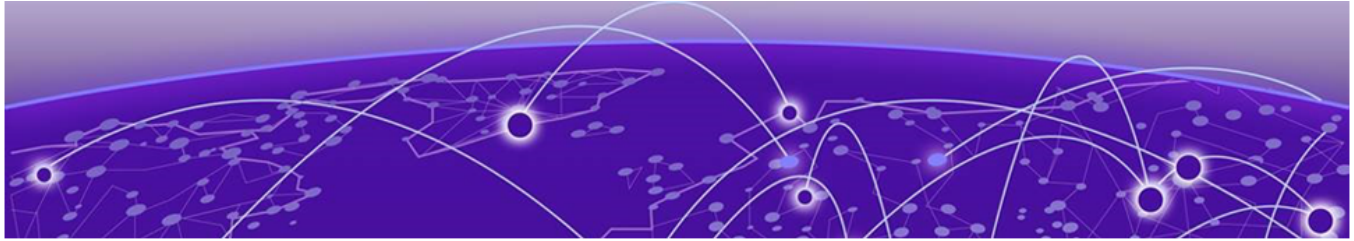
For the VIM5-2Q, the two LEDs in the QSFP+ cage are not supported/used, only the two sets of LEDs numbered L1-L4 on either side are supported as follows:



Figure 24: VIM5-2Q Port LEDs

Table 25: VIM5-2Q Port LEDs in SPD Mode

LED	Mapping
LED 1	represents 40G port status/speed or first 10G port's status/speed when channelized
LED 2	status/speed for second 10G port when channelized
LED 3	status/speed for third 10G port when channelized
LED 4	status/speed for fourth 10G port when channelized



Remove and Replace Components

[Remove the Switch from a Rack](#) on page 61

[Replace Power Supplies](#) on page 63

[Replace Fan Modules](#) on page 67

[Replace Expansion Modules](#) on page 68

Use the information in the following topics to remove or replace components.

VIMs and SSDs are not hot-swappable, and the switch must be disconnected from its power source before replacing these components.

For each switch, ensure that all installed power supplies and fan modules have the same front-to-back airflow direction.

Remove the Switch from a Rack

These procedures assume that you have attached the device to the rack as described in [Attach the Switch to a Rack or a Cabinet](#) on page 50.



Note

Read all of the information in this chapter thoroughly before attempting to remove a switch from a rack.

Remove the Switch from Service

Use the following instructions to remove a switch from service.

Disconnect the switch from its power source, following these steps as applicable:

- Disconnect and remove the switch's removable AC power supply. See "Adding or Replacing Power Supplies, Fans, and Expansion Modules."
- Disconnect the switch from its redundant power supply.

Remove the Switch from the Rack

To remove or reposition a switch after you have mounted it in a rack, follow these steps.

These procedures assume that you have attached the switch to the rack as described in [Attach the Switch to a Rack or a Cabinet](#) on page 50.

1. Support the switch while you remove the rack-mounting screws that hold the front mounting brackets in place against the rack posts.
2. Remove the switch from the rack.
 - For two-post installations, carefully slide the switch out of the rack. See [Figure 25](#).
 - For four-post installations, carefully slide the switch forward out of the cabinet and off the rear mounting brackets. See [Figure 26](#).

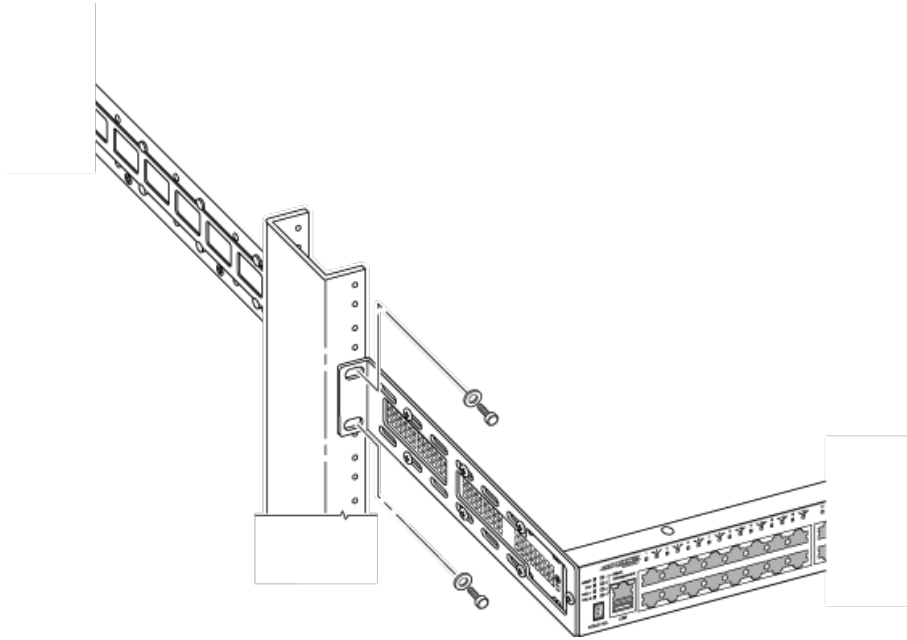


Figure 25: Removing a Front-Mounted Switch from a Two-Post Rack

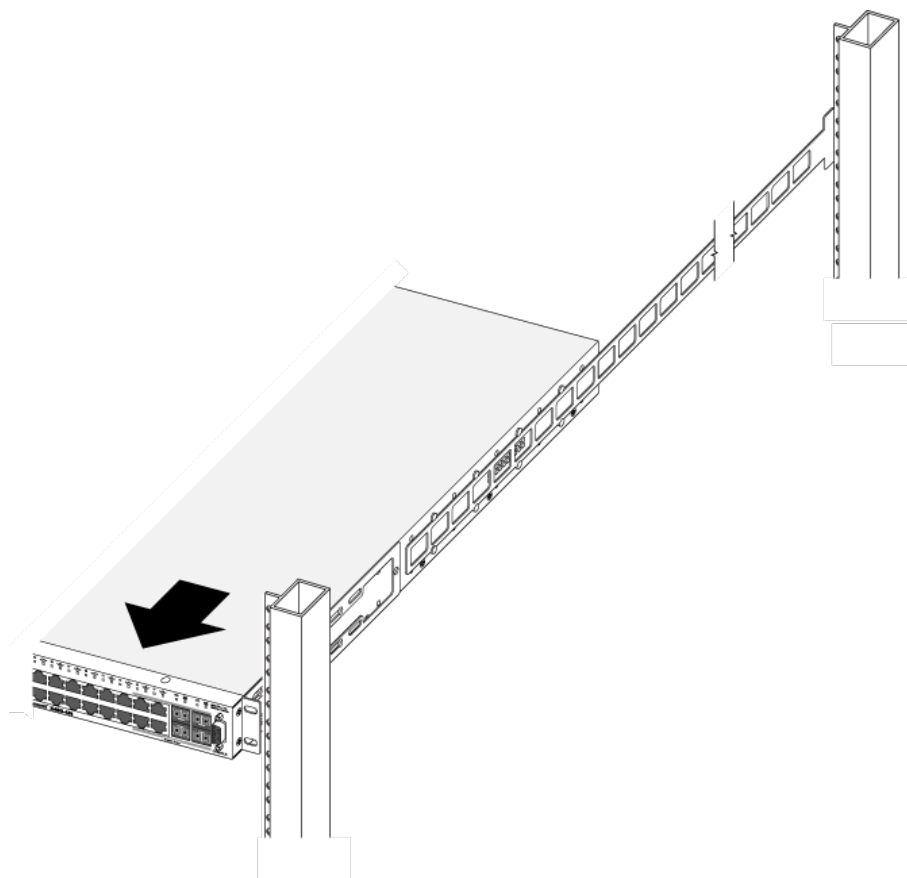


Figure 26: Removing the Switch from a Four-Post Rack

3. Place the switch on a secure, flat surface.
4. Using a #2 Phillips screwdriver, remove the front mounting brackets from the sides of the switch.
5. For four-post installations, remove the rear mounting brackets from the rear rack posts.

If you plan to use the switch again later, we recommend storing it with the mounting brackets attached.

Replace Power Supplies

For switches with replaceable power supplies, refer to the following information to replace the power supplies. In a switch with a redundant power configuration, you can replace one power supply without powering down the switch ("hot swapping"). VSP 4900 Series switches have two power supply slots. Power supply slots are located on the rear panel of the switch.



Caution

Power supplies that support PoE cannot be installed in switches that do not support PoE. The switch operating system prevents PoE power contribution from a power supply that is not listed for use with that particular switch model.

Images in this topic might show switches that are not identical to the ones you are using. However, the procedure for replacing a power supply is the same for all Extreme Networks switches.

**Note**

Read all of the information in this chapter thoroughly before attempting to replace a power supply.

Replace a Power Supply

VSP 4900 Series switches support the following power supplies:

- The 350 W AC power supplies (part numbers XN-ACPWR-350W-FB and 10953) provide front-to-back airflow and are compatible with VSP4900-24S and VSP4900-24XE switches that have the same airflow direction as the power supplies.
- The 715 W AC power supplies (part numbers XN-ACPWR-715W-FB and 10951) provide front-to-back airflow and are compatible with VSP4900-48P and VSP4900-12MXU-12XE switches that have the same airflow direction as the power supplies.
- The 1100 W AC power supplies (part numbers XN-ACPWR-1100W-FB and 10941) provide front-to-back airflow and are compatible with VSP4900-48P and VSP4900-12MXU-12XE switches that have the same airflow direction as the power supplies.
- The 2000 W AC power supplies (part numbers XN-ACPWR-2000W-FB and XN-ACPWR-2000W-F) provide front-to-back airflow) and are compatible with VSP4900-48P and VSP4900-12MXU-12XE switches that have the same airflow direction as the power supplies.

**Warning**

Be sure to disconnect all power cables before you disconnect the chassis ground wire.

**Warning**

Make sure that the AC power supply circuit is not overloaded. Use proper over-current protection, such as a circuit-breaker, to prevent over-current conditions.

Pre-Installation Requirements

You need the following tools and materials to replace a power supply:

- Thermal protective gloves
- AC power cord, if you are not re-using the cord from the removed power supply

Use the following instructions to remove and replace a power supply in the switch.

Remove a Power Supply**Caution**

Disconnect the AC power cord from the wall outlet and from the power supply before removing an AC power supply.

Use the following instructions to remove a power supply.

1. Attach an ESD-preventive wrist strap to your bare wrist and connect the metal end to an appropriate ground point on the rack.

**Caution**

Power supplies can become very hot during operation. Wear thermal protective gloves when you remove a power supply from an operating switch.

2. Note the orientation and the airflow direction of the installed power supply, and the location of the latching tab on the power supply.
3. Push the latching tab toward the power supply handle and pull outward on the handle to disengage the power supply internal connectors.

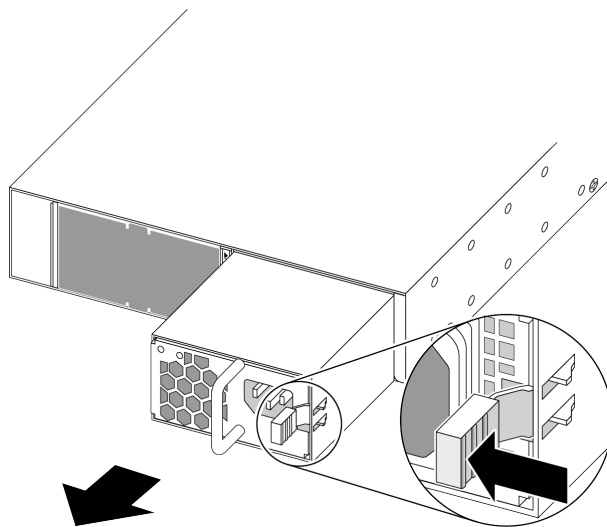


Figure 27: Remove a Power Supply

4. Carefully slide the power supply the rest of the way out of the switch.

**Note**

If you are not installing a replacement power supply, install a cover over the unoccupied power supply bay. Unoccupied bays must always be covered to maintain proper system ventilation and EMI levels.

Replace or Install a Power Supply

Use the following instructions to replace or install a power supply.

1. Attach an ESD-preventive wrist strap to your bare wrist and connect the metal end to an appropriate ground point on the rack.
2. If necessary, remove a blank panel from the back of the switch.
3. Ensure that the orientation of the power supply is correct, and that the new power supply's airflow direction (front-to-back or back-to-front) is compatible with the installed fan modules and any other installed power supplies.
4. Carefully slide the power supply all the way into the power supply slot.

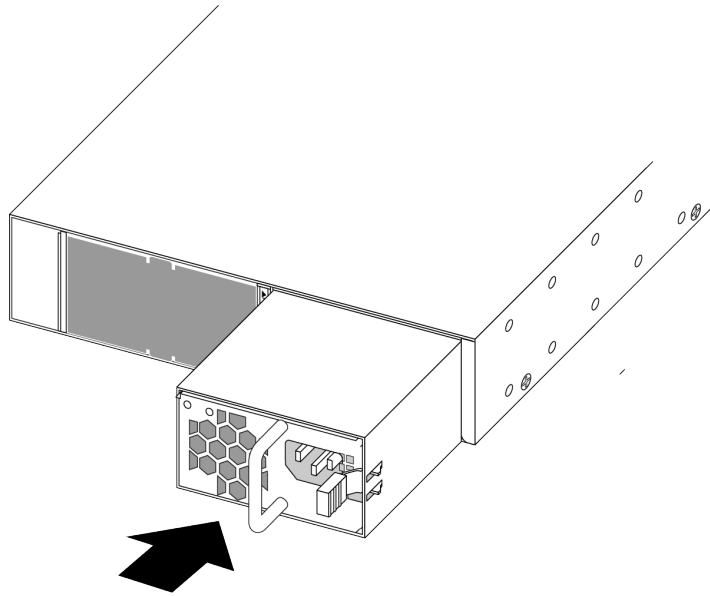


Figure 28: Install a Power Supply

5. Push the power supply in until the latch snaps into place.

Do not slam the power supply into the switch.



Note

Be sure to install a cover over any unoccupied power supply slots. Unoccupied power supply slots must always be covered to maintain proper system ventilation and EMI levels.

To install or replace a second power supply repeat this procedure.

After installing an AC power supply, connect the power cord to the power supply and to a grounded AC power outlet.



Warning

Always make sure that the source outlet is properly grounded before plugging the AC power cord into the AC power supply.

If the power supply is equipped with a power cord retainer, use the retainer to secure the power cord to the power supply.

Replace Fan Modules

For switches with replaceable fan modules, refer to the following information to replace the fan modules. You can replace fan modules as needed while the switch is operating ("hot swapping"). Fan module slots are located on the rear panel of the switch.

Do not operate a chassis for more than a few minutes with a missing fan module. To ensure internal chassis air pressure is maintained and to avoid loss of traffic due to modules overheating and shutting down, leave a failed fan module installed until you have a replacement.

Images in this topic might show switches that are not identical to the ones you are using. However, the procedure for replacing a fan module is the same for all Extreme Networks switches.



Note

Read all of the information in this chapter thoroughly before attempting to replace a fan module.

Replace a Fan Module

VSP 4900 Series switches support the following fan module:

- Part number XN-FAN-002-F provides front-to-back airflow for switch cooling

Before you begin, have the replacement fan module on hand so that you can complete the replacement promptly. The switch can overheat if left without adequate cooling for an extended time.

Remove a Fan Module

Use the following instructions to remove a fan module.

1. Gently pull the tab (labeled **Air Out**) on the end of the fan module.

The fan module is held in place by spring clips. As you pull, the clips disengage and the fan stops.

2. Slide the fan module out of the switch and set it aside.

Install a Fan Module

Use the following instructions to install a fan module.

1. Verify that the airflow direction on the replacement fan module matches that of the installed power supplies and any fan modules.

Fan modules with a **red** tab provide front-to-back airflow and are labeled **Air Out**.

2. Carefully slide the replacement fan module into the switch.

**Note**

Do not force the installation. If the fan assembly does not slide in easily, ensure that it is correctly oriented before continuing.

Push until the fan module snaps into place. The fan automatically starts to operate.

Replace Expansion Modules

The switch supports hardware accessories that expand the capabilities of the switch. Collectively, they are referred to as *expansion modules*. The VSP 4900 Series supports versatile interface modules (VIMs) and solid-state drives (SSDs).

**Note**

Read the information in this chapter thoroughly before trying to install or remove an expansion module.

**Warning**

The switch must be powered off before you install any expansion module options. The expansion module options are not hot swappable.

Replace Versatile Interface Modules

VSP 4900 Series switches support the following VIMs:

- VIM5-4X versatile interface module that provides four 10-GbE (SFP+) ports.
- VIM5-4XE versatile interface module that provides four 10-GbE (SFP+) ports, LRM/MACsec capable.
- VIM5-2Y versatile interface module that provides two 25-GbE (SFP28) ports.
- VIM5-4Y versatile interface module that provides four 25-GbE (SFP28) ports.
- VIM5-4YE versatile interface module that provides four 25-GbE (SFP28) MACsec capable ports.
- VIM5-2Q versatile interface module that provides two 40-GbE (QSFP) ports.

You need the following tools and materials to install a VIM module:

- ESD-preventive wrist strap
- Phillips head screwdriver

**Warning**

VIMs are not hot-swappable. Disconnect power to the switch before removing an installed VIM and installing a new one.

Remove a VIM module

Use the following instructions to remove a VIM module.

1. Attach the ESD wrist strap to your wrist and connect the metal end to an appropriate ground point on the rack.
2. Ensure that the switch is completely powered down.
3. Remove the screws that secure the VIM module in the VIM slot using the Phillips head screwdriver. Save the retaining screws to secure the new VIM module in the switch.

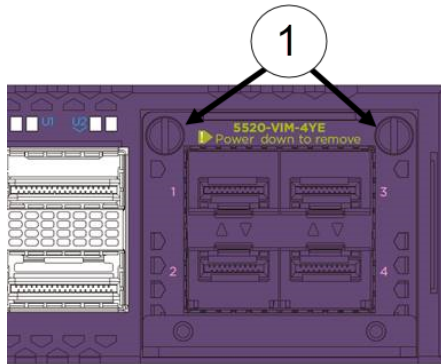


Figure 29: VIM Module Inserted in Slot

1 = VIM module retaining screw locations

4. Slide the VIM module out of the VIM slot and set it aside.

Replace a VIM module

Use the following instructions to replace a VIM module.

1. Attach the ESD wrist strap to your wrist and connect the metal end to an appropriate ground point on the rack.
2. Ensure that the switch is completely powered down.
3. Remove the VIM cover (if necessary). Squeeze the sides to release the plate, and pull down from the top to open. The plate will remain attached at the bottom.

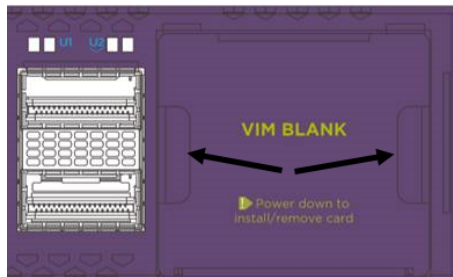


Figure 30: Removing a slot Cover Plate (VIM slot cover shown)

1 = VIM cover locations to squeeze

4. Remove the new VIM module from its anti-static packaging.
5. Install the VIM module in the switch:
 - a. Carefully slide the VIM module into the switch.
 - b. Insert and tighten the retaining screws you previously removed, using the Phillips head screwdriver.

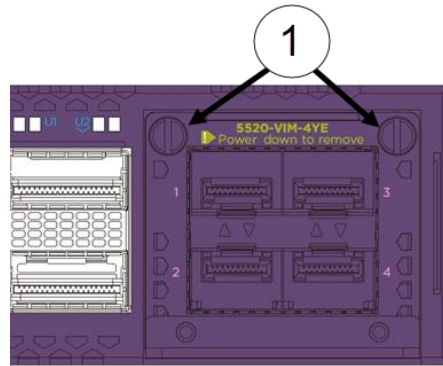


Figure 31: VIM Module Inserted in Slot

1 = VIM module retaining screw locations

Replace Solid-State Drives

VSP 4900 Series switches support the XN-SSD-001-120 solid-state drive.

You need the following tools and materials to install an SSD module:

- ESD-preventive wrist strap
- #2 Phillips head screwdriver



Warning

SSD modules are not hot-swappable. To prevent damage to the switch or SSD module, the switch must be powered OFF when removing or installing SSD modules.

Remove an SSD

1. Attach the ESD wrist strap to your wrist and connect the metal end to an appropriate ground point on the rack.
2. Ensure that the switch is completely powered down.
3. Remove the screws that secure the SSD module in the SSD slot in the rear of the switch using the #2 Phillips head screwdriver. Save the retaining screws to secure the new SSD module in the switch.

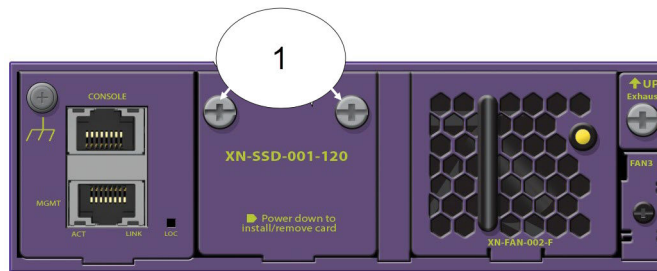


Figure 32: SSD Module Inserted in Slot

1 = SSD blank retaining screw location

4. Slide the SSD module out of the SSD slot and set it aside.

Replace an SSD

1. Attach the ESD wrist strap to your wrist and connect the metal end to an appropriate ground point on the rack.
2. Ensure that the switch is completely powered down.
3. Remove the rear panel SSD cover (if necessary) by removing the screws that hold the SSD cover over the SSD module slot, using the #2 Phillips head screwdriver.



Figure 33: SSD Cover

1 = SSD cover retaining screw location

4. Remove the new SSD module from its packaging.
5. Install the SSD module in the switch:
 - a. Carefully slide the SSD module into the slot on the rear panel until it is firmly in place.
 - b. Insert and tighten the retaining screws you previously removed, using the Phillips head screwdriver.

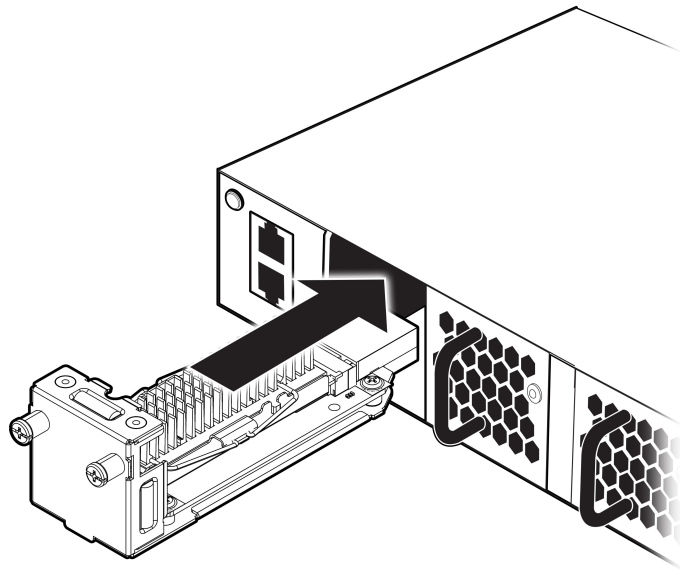
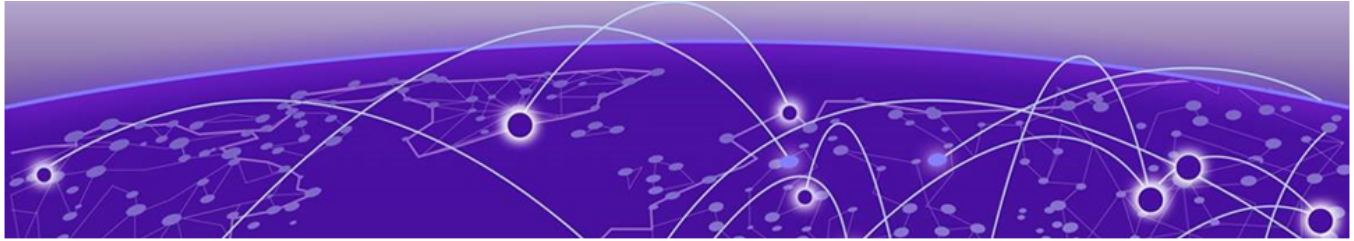


Figure 34: SSD Module Inserted in Slot

1 = Inserting SSD module in slot



Technical Specifications

[VSP 4900 Series Technical Specifications](#) on page 73

[Acoustic Noise and Fan Speed](#) on page 76

[CPU and Memory](#) on page 77

[Power Specifications](#) on page 77

[Power Supply Technical Specifications](#) on page 79

[Environmental](#) on page 82

[Standards](#) on page 83

[EMI/EMC Standards](#) on page 83

[Power Cord Requirements for AC-Powered Switches and AC Power Supplies](#) on page 85

[Console Connector Pinouts](#) on page 85

The following topics contain technical specifications for the hardware products described in this document.

VSP 4900 Series Technical Specifications

[External Interfaces](#) contains external interfaces and weights and dimensions information for VSP 4900 Series switches.

External Interfaces

Table 26: Switches

Part Number	Max Active 10/100/1000 Mb Ports
VSP4900-48P	48 x 10/100/1000BASE-T 802.3at (30w) ports • Full/ Half-Duplex • MACsec capable (128-bit) 1 x Serial (console port RJ-45) 1 x 10/100/1000BASE-T out-of-band management port 1 x USB Micro-B management port 2 x USB A ports for external USB flash 1 VIM5 slot
VSP4900-24S	24 x 100/1000BASE-X SFP ports (unpopulated) 1 x Serial (console port RJ-45) 1 x 10/100/1000BASE-T out-of-band management port 1 x USB Micro-B management port 2 x USB A ports for external USB flash 1 VIM5 slot
VSP4900-24XE	24 x 1/10GBASE-X SFP+ ports (unpopulated) • LRM and MACsec capable (256-bit) 1 x Serial (console port RJ-45) 1 x 10/100/1000BASE-T out-of-band management port 1 x USB Micro-B management port 2 x USB A ports for external USB flash 1 VIM5 slot
VSP4900-12MXU-12XE	12 x 100M/1/2.5/5/10GBASE-T 802.3bt Type3 (60w) ports 12 x 1/10GBASE-X SFP+ ports (unpopulated) • MACsec capable (256-bit) 1 x Serial (console port RJ-45) 1 x 10/100/1000BASE-T out-of-band management port 1 x USB Micro-B management port 2 x USB A ports for external USB flash 1 VIM5 slot

Table 27: Versatile Interface Modules

Part Number	Max Active 10/100/1000 Mb Ports
VIM5-4X	4 x 1/10GBASE-X SFP+ (unpopulated ports)
VIM5-4XE	4 x 1/10GBASE-X SFP+ (unpopulated ports) • LRM capable • MACsec capable (256-bit)
VIM5-4YE	4 x 10/25GBASE-X SFP28 (unpopulated ports) • MACsec capable (256-bit)
VIM5-2Q	2 x 40GBASE-X QSFP+ (unpopulated ports)

Table 28: Available SSD Module

SSD Module	Description	Compatible Switch Models
XN-SSD-001-120	Modular 120GB SSD	VSP4900 (all models)

Weights and Dimensions

Table 29: Switches

Part Number	Weight	Physical Dimensions	
		Chassis Only	With PSU
VSP4900-48P	8.39 kg (18.49 lb)	Height: 43.18 mm (1.70 in) Width: 440.44 mm (17.34 in) Depth: 488.44 mm (19.23 in)	Height: 43.18 mm (1.70 in)
VSP4900-24S	8.17 kg (18.01 lb)		Width: 440.44 mm (17.34 in)
VSP4900-24XE	7.66 kg (16.89 lb)		Depth: 506.22 mm (19.93 in)
VSP4900-12MX U-12XE	7.58 kg (16.67 lb)		

Table 30: Versatile Interface Modules

Part Number	Weight	Physical Dimensions
VIM5-4X	0.17 kg (0.37 lb)	Height: 40.89 mm (1.61 in) Width: 48.77 mm (1.92 in) Depth: 146.30 mm (5.76 in)
VIM5-4XE	0.19 kg (0.41 lb)	
VIM5-4YE	0.19 kg (0.41 lb)	
VIM-2Q	0.17 kg (0.37 lb)	

Table 31: Power Supplies

Part Number	Weight	Physical Dimensions
XN-ACPWR-350W-FB and 10953 (350W AC)	1.08 kg (2.38 lb)	Height: 39.62 mm (1.56 in) Width: 82.55 mm (3.25 in) Depth: 287.02 mm (11.30 in)
XN-ACPWR-715W-FB and 10951 (715W AC)	1.16 kg (2.55 lb)	
XN-ACPWR-1100W-FB and 10941 (1100W AC)	1.16 kg (2.55 lb)	
XN-ACPWR-2000W-FB XN-ACPWR-2000W-F (2000W AC)	1.16 kg (2.56 lb)	Height: 39.62 mm (1.56 in) Width: 82.55 mm (3.25 in) Depth: 292.10 mm (11.50 in)

Console Cables

	Description
XN-RJ45-DB9-CONSOLE-CBL	RJ45 to DB9 Console cable (6ft)
XN-RJ45-USBA-CONSOLE-CBL	RJ45 to USBA Console cable (6ft)*
XN-RJ45-USBC-CONSOLE-CBL	RJ45 to USBC Console cable (6ft)*

* The cable might require a FTDI software driver on some operating systems.

Acoustic Noise and Fan Speed

Table 32 includes acoustic specifications for VSP 4900 Series switches under maximum operating conditions. Refer to the *Extreme 8520 Data Sheet* for up-to-date information

Table 32: Acoustic Noise and Fan Speed

Switch Model	Ambient Temp	VIM	PoE	Main Fan Speed (% of max)	PSU1 + PSU2	Bystander Sound Pressure	Declared Sound Power (LWAd)
VSP4900-48P	25°C	VIM5-4XE	720W	20%	1100W (½ of max PoE power)	45.8	56.6
VSP4900-12MXU-12XE	25°C	None	720W	30%	1450W (½ of max PoE power)	50.3	55.1
VSP4900-24S	25°C	None	None	30%	350W	49.5	56.2
VSP4900-24XE	25°C	None	None	30%	350W	49.9	56.8
Note: *Power Supply fans at 100% Note: Acoustic noise levels shown here represent noise emitted by the switch at room ambient temperatures. Values are based on a fully configured system consisting of two PSUs and two I/O modules operating under full load. Normal operating temperature range: 0°C to 50°C.							

Fan Speed and Temperature Variation

The speed of the fan increases only when the temperature of the device increases. Fan speed is not dependent on any fan failures.

Table 33: VSP 4900 Fan Speed and Power Consumption

Fan Speed	Fan Module RPM (typical)		Power
	Inlet Fan	Outlet Fan	Typical
Full	16,000 (typ)	13,500 (typ)	15.8W per module*
Low	3,200 (typ)	2,800 (typ)	

* Some units are equipped with (1) fan module, while others are equipped with 2. Total fan power is equal to the number of installed fan modules multiplied by the fan power for each module.

CPU and Memory

Table 34 includes CPU and memory specifications for VSP 4900 Series switches.

Table 34: CPU and Memory

VSP4900-48P, VSP4900-24S	VSP4900-24XE, VSP4900-12MXU-12XE
2-core, 1.5GHz x86 CPU	4-core, 2.1GHz x86 CPU
2 GB DDR4 memory	8 GB DDR4 memory
8 GB eMMC Flash Memory	
12MB packet buffer per chip	

Power Specifications

This topic describes power supply specifications, power consumption, and heat dissipation. Refer to the *VSP 4900 Series Data Sheet* for up-to-date information.

Power Supply Specifications

	10953	10951	10941	XN-ACPWR-2000W-F*
Voltage Input Range (Nominal)	100-127 / 200-240 VAC	100-127 / 200-240 VAC	100-127 / 200-240 VAC	100-127 / 200-240 VAC
Line Frequency Range	50 to 60 Hz	50 to 60 Hz	50 to 60 Hz	50 to 60 Hz
Power Supply Input Socket	IEC/EN 60320 C14	IEC/EN 60320 C16	IEC/EN 60320 C16	IEC/EN 60320 C16

	10953	10951	10941	XN-ACPWR-2000W-F*
Power Cord Input Plug	IEC/EN 60320 C15	IEC/EN 60320 C15	IEC/EN 60320 C15	IEC/EN 60320 C15
Operating Temperature	0 °C to 55 °C (32 °F to 131 °F) Normal Operation	0 °C to 50 °C (32 °F to 122 °F) Normal Operation	0 °C to 50 °C (32 °F to 122 °F) Normal Operation	0 °C to 55 °C (32 °F to 131 °F) Normal Operation

*200-240 VAC is required to achieve full 2000W output. If run at 100-120 VAC, output is limited to 1100W.

	XN-ACPWR-350W-FB	XN-ACPWR-715W-FB	XN-ACPWR-1100W-FB	XN-ACPWR-2000W-FB*
Voltage Input Range (Nominal)	100-240 VAC	100-240 VAC	100-240 VAC	100-240 VAC
Line Frequency Range	50 to 60 Hz	50 to 60 Hz	50 to 60 Hz	50 to 60 Hz
Power Supply Input Socket	IEC/EN 60320 C14	IEC/EN 60320 C16	IEC/EN 60320 C16	IEC/EN 60320 C16
Power Cord Input Plug	IEC/EN 60320 C15	IEC/EN 60320 C15	IEC/EN 60320 C15	IEC/EN 60320 C15
Operating Temperature	0 °C to 55 °C (32 °F to 131 °F) Normal Operation	0 °C to 55 °C (32 °F to 131 °F) Normal Operation	0 °C to 50 °C (32 °F to 122 °F) Normal Operation	0 °C to 50 °C (32 °F to 122 °F) Normal Operation

*200-240 VAC is required to achieve full 2000W output. If run at 100-120 VAC, output is limited to 1100W.



Note

XN-ACPWR-xxx-FB PSUs cannot be used with the 10941, 10951, 10953, or XN-ACPWR-2000W-F PSUs on the same switch.

The following are the minimum software versions that are required for use with XN-ACPWR-xxx-FB PSUs and the switch:

- EXOS version 31.3.1
- VOSS version 8.3

Previous software versions are not supported with XN-ACPWR-xxx-FB PSUs. You must upgrade to the listed minimum software version or later to use any of the XN-ACPWR-xxx-FB PSUs with the switch.

The following table lists supported PSU combinations when dual redundant PSUs are used on the switch.

Refer to the *VSP 4900 Series Data Sheet* for appropriate PSUs for the switch.

Table 35: PSU Redundancy Compatibility Notes

Switch Model	Primary PSU	Secondary PSU
Non-PoE models	XN-ACPWR-350W-FB	XN-ACPWR-350W-FB
PoE models	XN-ACPWR-715W-FB or XN-ACPWR-1100W-FB or XN-ACPWR-2000W-FB	XN-ACPWR-715W-FB or XN-ACPWR-1100W-FB or XN-ACPWR-2000W-FB

PoE Power Budget

Switch Model	1 x 715W PSU	2 x 715W PSU	1 x 1100W PSU	2 x 1100W PSU	1 x 2000W @ 200-240 VAC	1 x 2000W @ 100-120 VAC	2 x 2000 @ 200-240 VAC	2 x 2000W @ 100-120 VAC
VSP4900-48P	460W	1045W	845W	1440W	1440W	845W	1440W	1440W
VSP4900-12MXU-12XE	TBD	720W	720W	720W	720W	720W	720W	720W

Minimum/Maximum Power Consumption and Heat Dissipation

Switch Model	Minimum Power Consumption (W)	Minimum Heat Dissipation (BTU/hr)	Maximum Power Consumption (W)*	Maximum Heat Dissipation (BTU/hr)**
VSP4900-48P	74	254	1746	1046
VSP4900-24S	52	179	173	590
VSP4900-24XE	80	271	207	707
VSP4900-12MXU-12XE	73	250	970	854

* Includes maximum PoE load (W) through the switch

** Does not include PoE load heat dissipated through external electronic load

Power Supply Technical Specifications

This section lists technical specifications for the power supplies.

350 W AC Power Supplies Technical Specifications

The 350 W AC power supplies (part numbers XN-ACPWR-350W-FB and 10953) provide front-to-back airflow and are compatible with VSP4900-24S and VSP4900-24XE switches that have the same airflow direction as the power supplies.

Table 36: Power Specifications

Voltage input range	100-127/200-240 ~ 47 to 63Hz
Nominal input ratings	12.5 A max at 115VAC and 6A max at 230VAC at Full 350 W load
Maximum inrush current	45A at Max 264 VAC at 25C with cold start
Output	54 V, 13.2 A max, 350 W
Power supply input socket and cord	IEC/EN 60320-1/C16 AC input receptacles
Power cord wall plug	Refer to Power Cord Requirements for AC-Powered Switches and AC Power Supplies on page 85
Efficiency	Minimum efficiency: 88% at maximum power output

Table 37: Environmental Specifications

Operating temperature	-10°C to 50°C (normal operation)
Storage temperature	-40°C to 70°C
Operating humidity	93% relative humidity, non-condensing at 30C
Operational shock	30 m/s ² (3 G)

715 W AC Power Supplies Technical Specifications

The 715 W AC power supplies (part numbers XN-ACPWR-715W-FB and 10951) provide front-to-back airflow and are compatible with VSP4900-48P and VSP4900-12MXU-12XE switches that have the same airflow direction as the power supplies.

Table 38: Power Specifications

Voltage input range	100-127/200-240 ~ 47 to 63Hz
Nominal input ratings	12.5 A max at 115VAC and 6A max at 230VAC at Full 715 W load
Maximum inrush current	45A at Max 264 VAC at 25C with cold start
Output	54 V, 13.2 A max, 715 W
Power supply input socket and cord	IEC/EN 60320-1/C16 AC input receptacles

Table 38: Power Specifications (continued)

Power cord wall plug	Refer to Power Cord Requirements for AC-Powered Switches and AC Power Supplies on page 85
Efficiency	Minimum efficiency: 88% at maximum power output

Table 39: Environmental Specifications

Operating temperature	-10°C to 50°C (normal operation)
Storage temperature	-40°C to 70°C
Operating humidity	93% relative humidity, non-condensing at 30C
Operational shock	30 m/s ² (3 G)

1100 W AC Power Supplies Technical Specifications

The 1100 W AC power supplies (part numbers XN-ACPWR-1100W-FB and 10941) provide front-to-back airflow and are compatible with VSP4900-48P and VSP4900-12MXU-12XE switches that have the same airflow direction as the power supplies.

Table 40: Power Specifications

Voltage input range	100-127/200-240 ~ 47 to 63Hz
Nominal input ratings	12.5 A max at 115VAC and 6 A max at 230VAC at full 1100 W load
Maximum inrush current	45A at Max 264 VAC at 25C with cold start
Output	54 V, 20 A max, 1100 W
Power supply input socket and cord	IEC/EN 60320-1/C16 AC input receptacles
Power cord wall plug	Refer to Power Cord Requirements for AC-Powered Switches and AC Power Supplies on page 85
Efficiency	Minimum efficiency: 88% at maximum power output

Table 41: Environmental Specifications

Operating temperature	0°C to 50°C (normal operation)
Storage temperature	-40°C to 70°C
Operating humidity	93% relative humidity, non-condensing at 30C
Operational shock	30 m/s ² (3 G)

2000 W AC Power Supply Technical Specifications

The 2000 W AC power supplies (part numbers XN-ACPWR-2000W-FB and XN-ACPWR-2000W-F) provide front-to-back airflow) and are compatible with

VSP4900-48P and VSP4900-12MXU-12XE switches that have the same airflow direction as the power supplies.

Table 42: Power Specifications

Voltage input range	100-200 ~ 50 to 60Hz
Nominal input ratings	12.5 A max at 115VAC and 6A max at 230VAC at Full 770 W load
Maximum inrush current	45A at Max 264 VAC at 25C with cold start
Output	54 V, 13.2 A max, 2000 W
Power supply input socket and cord	IEC/EN 60320-1/C16 AC input receptacles
Power cord wall plug	Refer to Power Cord Requirements for AC-Powered Switches and AC Power Supplies on page 85
Efficiency	Minimum efficiency: 88% at maximum power output

Table 43: Environmental Specifications

Operating temperature	0°C to 50°C (normal operation)
Storage temperature	-40°C to 70°C
Operating humidity	93% relative humidity, non-condensing at 30C
Operational shock	

Environmental

Environmental Specifications

EN/ETSI 300 019-2-1 v2.1.2 - Class 1.2 Storage
 EN/ETSI 300 019-2-2 v2.1.2 - Class 2.3 Transportation
 EN/ETSI 300 019-2-3 v2.1.2 - Class 3.1e Operational
 EN/ETSI 300 753 (1997-10) - Acoustic Noise
 ASTM D3580 Random Vibration Unpackaged 1.5G

Environmental Compliance

EU RoHS 2011/65/EU
 EU WEEE 2012/19/EU
 China RoHS SJ/T 11363-2006
 Taiwan RoHS CNS 15663(2013.7)

Operating Conditions

Temp: 0°C to 45°C (32°F to 113°F)
 Humidity: 10% to 95% relative humidity, non-condensing

Altitude: 0 to 3,000 meters (9,850 feet)
Shock (half sine) 30m/s² (3G), 11ms, 60 shocks
Random vibration: 3 to 500Hz at 1.5G rms

Packaging and Storage Specifications

Temp: -40°C to 70°C (-40°F to 158°F)
Humidity: 10% to 95% relative humidity, non-condensing
Packaged Shock (half sine): 180m/s² (18 G), 6ms, 600 shocks
Packaged Vibration: 5 to 62Hz at velocity 5mm/s, 62 to 500Hz at 0.2G
Packaged Random Vibration: 5 to 20Hz at 1.0 ASD w/-3 dB/oct. from 20 to 200Hz
Packaged Drop Height: 14 drops minimum on sides and corners at 42 inches (<15 kg box)

Standards

North American ITE

UL 60950-1
UL 62368-1
Complies with FCC 21CFR 1040.10 (U.S. Laser Safety)
CDRH Letter of Approval (US FDA Approval)
CAN/CSA 22.2 No. 60950-1
CAN/CSA No. 22.2 62368-1-14

European ITE

EN 60950-1, EN 62368-1
EN 60825-1 Class 1 (Lasers Safety)
2014 / 35/ EU Low Voltage Directive

International ITE

CB Report & Certificate per IEC 60950-1 AS/NZS 60950-1 (Australia /New Zealand)
IEC 62368-1
GB 4943.1-2011
CNS 14336-1

EMI/EMC Standards

North American EMC for ITE

FCC CFR 47 part 15 Class A (USA)
ICES-003 Class A (Canada)

European EMC Standards

EN 55032 Class A
EN 55024
EN 61000-3-2,2014 (Harmonics)
EN 61000-3-3 2013 (Flicker)
EN 300 386 v1.6.1 (EMC Telecommunications)
2014/30/EU EMC Directive
EN 55011 Class A

International EMC Certifications

CISPR 32, Class A (International Emissions)
AS/NZS CISPR32
CISPR 24 Class A (International Immunity)
IEC 61000-4-2 / EN 61000-4-2 Electrostatic Discharge, 8kV Contact, 15 kV Air, Criteria A
IEC 61000-4-3 / EN 61000-4-3 Radiated Immunity 10V/m, Criteria A
IEC 61000-4-4 / EN 61000-4-4 Transient Burst, 1 kV, Criteria A
IEC 61000-4-5 / EN 61000-4-5 Surge, 2 kV L-L, 2 kV L-G, Level 3, Criteria A
IEC 61000-4-6 Conducted Immunity, 0.15-80 MHz, 10V/m unmod. RMS, Criteria A
IEC/EN 61000-4-11 Power Dips & Interruptions, >30%, 25 periods, Criteria C
IEC 61000-4-8 / EN 61000-4-8
CISPR 11 Class A
GB/T 9254-2008

Country Specific

VCCI Class A (Japan Emissions)
ACMA RCM (Australia Emissions)
CCC Mark (China)
KCC Mark, EMC Approval (Korea)
EAC Mark (Custom Union)
NRCS / SABS Mark (South Africa)
BSMI Mark (Taiwan)
Telecom Standards

Telecom Standards

CE 2.0 Compliant

IEEE 802.3 Media Access Standards

IEEE 802.3ab 1000BASE-T
IEEE 802.3ae 10GBASE-X
IEEE 802.3aq 10GBASE-LRM

25Gb Ethernet implemented per Ethernet Consortium specification and IEEE 802.3 standard
IEEE 802.3ba / 802.3bm 40GBASE-X
IEEE 802.3at PoE Plus
IEEE 802.3az Energy Efficient Ethernet

Power Cord Requirements for AC-Powered Switches and AC Power Supplies

An AC power cord is not included with the AC power supply.

Power cords used with AC-powered switches or AC power supplies must meet the following requirements:

- The power cord must be agency-certified for the country of use.
- The power cord must have an appropriate AC connector for connection to the switch or power supply. See the power supply documentation for the appropriate power cord.
- The power cord must have an appropriately rated and approved wall plug applicable to the country of installation.

For details about obtaining AC power cords for use in your country, refer to <http://www.extremenetworks.com/product/powercords/>.

Console Connector Pinouts

Table 44 describes the pinouts for a DB-9 console plug connector.

Table 44: Pinouts for the DB-9 Console Connector

Function	Pin Number	Direction
DCD (data carrier detect)	1	In
RXD (receive data)	2	In
TXD (transmit data)	3	Out
DTR (data terminal ready)	4	Out
GND (ground)	5	-
DSR (data set ready)	6	In
RTS (request to send)	7	Out
CTS (clear to send)	8	In

Figure 35 shows the pinouts for a 9-pin to 25-pin (RS-232) null-modem cable.

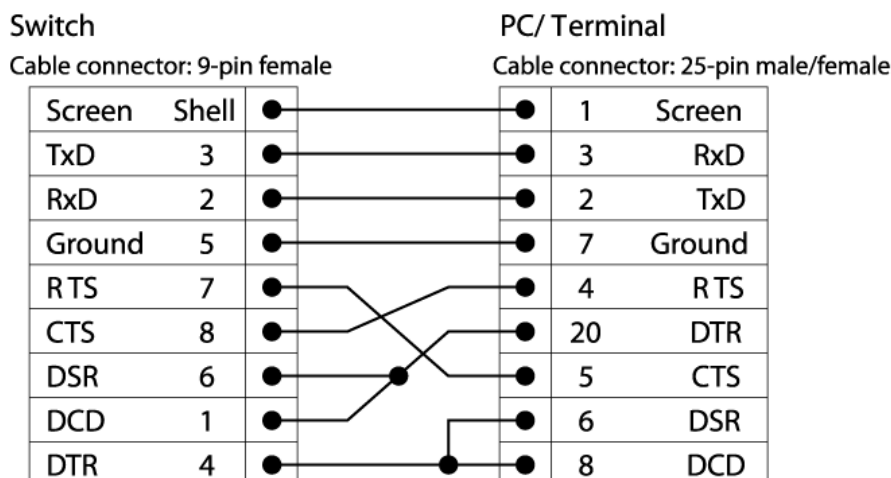
**Figure 35: Null-Modem Cable Pinouts**

Figure 36 shows the pinouts for a 9-pin to 9-pin (PC-AT) null-modem serial cable.

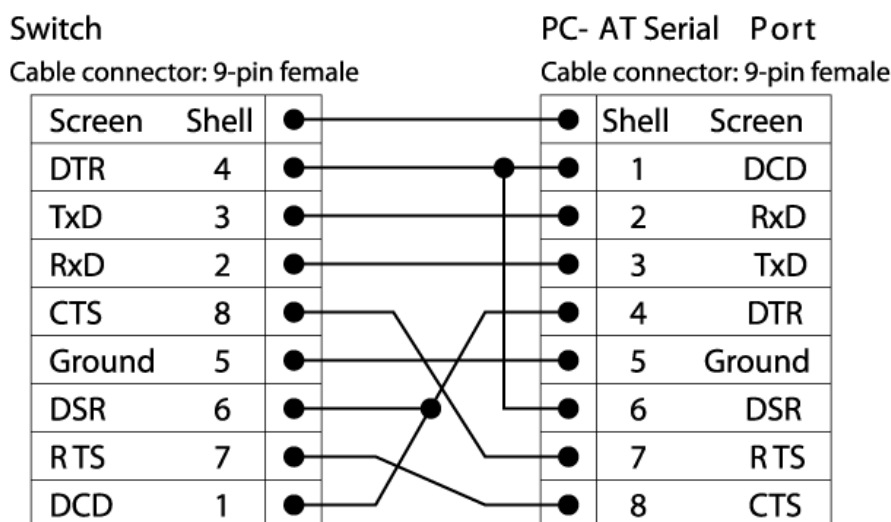
**Figure 36: PC-AT Serial Null-modem Cable Pinouts**

Table 45 shows the pinouts for the RJ45 console port on the ExtremeSwitching switches.

Table 45: RJ45 Console Port on Switch

Function	Pin Number	Direction
RTS (request to send)	1	Out
DTR (data carrier detect)	2	Out
TXD (transmit data)	3	Out
GND (ground)	4	—
GND (ground)	5	—
RXD (receive data)	6	In

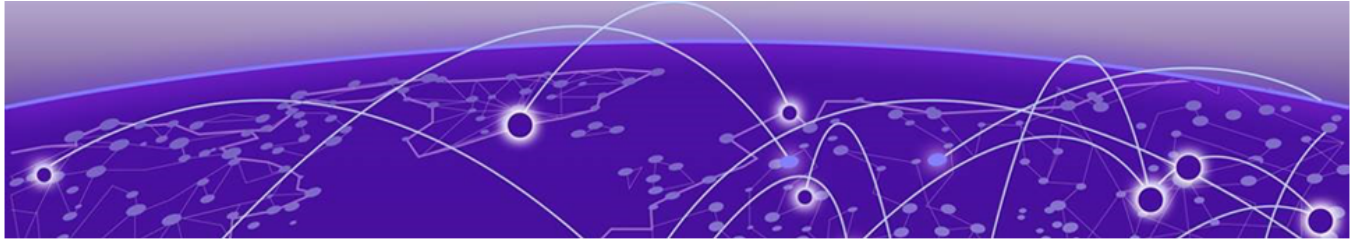
Table 45: RJ45 Console Port on Switch (continued)

Function	Pin Number	Direction
DSR (data set ready)	7	In
CTS (clear to send)	8	In

Table 46 shows the pinouts for an RJ45-to-DB-9 adapter.

Table 46: Pinouts for an RJ45 to DB-9 Adapter

Signal	RJ45 Pin	DB-9 Pin
CTS (clear to send)	1	8
DTR (data carrier detect)	2	6
TXD (transmit data)	3	2
GND (ground)	4	5
GND (ground)	5	5
RXD (receive data)	6	3
DSR (data set ready)	7	4
RTS (request to send)	8	7



Safety and Regulatory Information

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[General Safety Precautions](#) on page 89
[Maintenance Safety](#) on page 90
[Fiber Optic Ports and Optical Safety](#) on page 90
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Note

Read the following safety information thoroughly before installing Extreme Networks products. Failure to follow this safety information can lead to personal injury or damage to the equipment.

Only trained and qualified service personnel (as defined in IEC 60950-1 and AS/NZS 3260) should install, replace, or perform service to Extreme Networks switches and their components. Qualified personnel have read all related installation manuals, have the technical training and experience necessary to be aware of the hazards to which they are exposed in performing a task, and are aware of measures to minimize the danger to themselves or other persons.

If you are located in the United States, install the system in accordance with the U.S. National Electrical Code (NEC).

Considerations Before Installing

Consider the following items before you install equipment.

- For equipment designed to operate in a typical Telco environment that is environmentally controlled, choose a site that has the following characteristics:
 - Temperature-controlled and humidity-controlled, such that the maximum ambient room temperature shall not exceed 50°C (122°F).
 - Clean and free from airborne materials that can conduct electricity.
 - Well ventilated and away from sources of heat including direct sunlight.
 - Away from sources of vibration or physical shock.
 - Isolated from strong electromagnetic fields produced by electrical devices.
- For equipment designed to be installed in environments that are not environmentally controlled, such as outdoor enclosures, see the product data sheet or for environmental conditions, temperature, and humidity.
- Establish at least 3 inches clearance on all sides for effective ventilation. Do not obstruct the air intake vent on the front, side, or rear ventilation grills. Locate the system away from heat sources.
- Make sure that your equipment is placed in an area that accommodates the power consumption and component heat dissipation specifications.
- Make sure that your power supplies meet the site DC power or AC power requirements of all the network equipment.
- Racks for Extreme Networks equipment must be permanently attached to the floor. Failure to stabilize the rack can cause the rack to tip over when the equipment is removed for servicing.
- Do not operate the system unless all modules, faceplates, front covers, and rear covers are in place. Blank faceplates and cover panels are required for the following functions:
 - Preventing exposure to hazardous voltages and currents inside the equipment
 - Containing electromagnetic interference (EMI) that might disrupt other equipment
 - Directing the flow of cooling air through the equipment
- Ultimate disposal of this product should be handled according to all national laws and regulations.

General Safety Precautions

Follow these guidelines:

- Do not try to lift objects that you think are too heavy for you.
- When you install equipment in a rack, load heavier devices in the lower half of the rack first to avoid making the rack top-heavy.
- Use only tools and equipment that are in perfect condition. Do not use equipment with visible damage.
- Route cables in a manner that prevents possible damage to the cables and avoids causing accidents, such as tripping.

- Do not place a monitor or other objects on top of the equipment. The chassis cover is not designed to support weight.
- To reduce the risk of fire, use only #26 AWG or larger telecommunications line cord. Use only copper conductors.
- Do not work on the system or connect or disconnect cables during periods of lightning activity.
- This equipment must be grounded. Never defeat the ground conductor or operate the equipment in the absence of a suitably installed ground conductor.

Maintenance Safety

When you perform maintenance procedures on Extreme Networks equipment, follow these recommendations:

- Use only authorized accessories or components approved for use with this system. Failure to follow these instructions may damage the equipment or violate required safety and EMC regulations.
- This system contains no customer serviceable components. Do not attempt to repair a chassis, power supply, module, or other component. In the event of failure, return the defective unit to Extreme Networks for repair or replacement, unless otherwise instructed by an Extreme Networks representative.
- To remove power from the system, you must unplug all power cords from wall outlets. The power cord is the disconnect device to the main power source.
- Disconnect all power cords before working near power supplies, unless otherwise instructed by a product-specific maintenance procedure.
- Replace a power cord immediately if it shows any signs of damage.
- When you work with optical devices, power supplies, or other modular accessories, put on an ESD-preventive wrist strap to reduce the risk of electronic damage to the equipment. Connect the other end of the strap to an appropriate grounding point on the equipment rack or to an ESD jack on the chassis if one is provided. Leave the ESD-preventive wrist strap permanently attached to the equipment rack or chassis so that it is always available when you need to handle components that are sensitive to ESD.
- Install all cables in a manner that avoids strain. Use tie wraps or other strain relief devices.

Fiber Optic Ports and Optical Safety

The following safety warnings apply to all optical devices used in Extreme Networks equipment that are removable or directly installed in an I/O module or chassis system.

Such devices include but are not limited to gigabit interface converters (GBICs), small form factor pluggable (SFP) modules (or mini-GBICs), QSFP+ modules, XENPAK transceivers, and XFP laser optic modules.

**Warning**

Laser optic modules become very hot after prolonged use. Take care when removing a laser optic module from the module or option card. If the laser optic module is too hot to touch, disengage the laser optic module and allow it to cool before removing it completely.

When working with laser optic modules, always take the precautions listed below to avoid exposure to hazardous radiation.

- Never look at the transmit LED/laser through a magnifying device while the transmit LED is powered on.
- Never look directly at a fiber port on the switch or at the ends of a fiber cable when they are powered on.
- Invisible laser radiation can occur when the connectors are open. Avoid direct eye exposure to the beam when optical connections are unplugged.
- Never alter, modify, or change an optical device in any way other than suggested in this document.

GBIC, SFP (Mini-GBIC), QSFP+, XENPAK, and XFP Regulatory Compliance

Extreme Networks pluggable optical modules and direct-attach cables meet the following regulatory requirements:

- Class 1 or Class 1M Laser Product
- EN60825-1:2007 2nd Ed. or later, European standard
- FCC 21 CFR Chapter 1, Subchapter J in accordance with FDA & CDRH requirements
- Application of CE Mark in accordance with 2014/30/EU EMC Directive and the 2014/35/EU Low Voltage Directives
- UL and/or CSA registered component for North America
- 47 CFR Part 15, Class A when installed into Extreme products

Cable Routing for LAN Systems

Extreme Networks equipment meets the requirements for LAN system equipment.

LAN systems are designed for intra-building installations; that is, cable runs between devices must be in the same building as the connected units, except under the conditions listed in the next paragraph.

As allowed in the USA by the National Electrical Code (NEC), this equipment can be connected between buildings if any one of the following conditions is true:

- Cable runs between buildings are less than 140 feet long.
- Cable runs between buildings are directly buried.

- Cable runs between buildings are in an underground conduit, where a continuous metallic cable shield or a continuous metallic conduit containing the cable is bonded to each building grounding electrode system.

**Caution**

Failure to follow these requirements for cable routing conditions may expose the user to electrical shock and expose the unit to damage that can cause errors.

**Warning**

The Ethernet ports of the equipment and its sub-assemblies are suitable only for intra-building connections (within the same building) or for connections to unexposed wiring or cabling. (See the conditions listed above.) The Ethernet ports of this equipment or its sub-assemblies must not be metalically connected to interfaces that connect to the outside plant (OSP) or its wiring. Ethernet interfaces are designed for use only as intra-building interfaces (described as Type 2 or Type 4 ports in GR-1089-CORE, Issue 6) and require isolation from the exposed OSP wiring. The addition of Primary Protectors is not sufficient protection to connect these interfaces metalically to OSP wiring.

Install Power Supply Units and Connect Power

For the ratings and power input requirements of each power supply unit, see [Technical Specifications](#) on page 73 or the data sheet for the power supply at www.extremenetworks.com.

**Warning**

Be sure to satisfy the requirements listed in this section when you install Extreme Networks power supplies or connect power.

When you install any power supply:

- Do not use excessive force when you insert a power supply into the bay.
- Do not attempt to open the power supply enclosure for any reason; the power supply does not contain user-serviceable parts. In the event of failure, return the defective power supply to Extreme Networks for repair or replacement.
- Do not put your hand into an open power supply bay when a power supply is not present.
- Before you work on equipment that is connected to power lines, remove all jewelry, including watches. Metal objects heat up when they are connected to power and ground and can cause serious burns or weld the metal object to the terminals.
- An electrical arc can occur when you connect or disconnect the power with power applied. This could cause an explosion in hazardous area installations. Be sure that power is removed from the device.
- When you install or replace equipment, always make the ground connection first and disconnect the ground connection last.

When you install DC power supplies or connect DC power:

- Extreme Networks DC power supplies do not have switches for turning the unit on and off. Make sure that the DC circuit is de-energized before connecting or disconnecting the DC power cord at the DC input power socket.
- Connect the system or power supply only to a DC power source that complies with the safety extra-low voltage (SELV) requirements in IEC 60950-based safety standards.

**Note**

Because building codes vary worldwide, consult an electrical contractor to ensure proper equipment grounding and power distribution for your specific installation and country.

**Warning**

Extreme Networks power supplies do not have switches for turning the unit on and off. Disconnect all power cords to remove power from the device. Make sure that these connections are easily accessible.

Extreme Networks alimentations n'ont pas de contact pour mettre l'appareil sous et hors tension. Débranchez tous les cordons d'alimentation pour couper l'alimentation de l'appareil. Assurez-vous que ces connexions sont facilement accessibles.

Select Power Supply Cords

You can purchase a power cord for your product and for your specific country from your local Extreme Networks Channel Account Manager or Sales Manager, or you can purchase a cord from your local supplier. Requirements for the power cord are listed in the Technical Specifications for your product.

To locate a Sales Manager or Partner in your region, visit www.extremenetworks.com/partners/where-to-buy.

**Note**

This equipment is not intended to be directly powered by power distribution systems where phase-phase voltages exceed 240 VAC (2P+PE), such as those used in Norway, France, and other countries. For these applications, use a transformer to step down the voltage to < 240 VAC from phase-phase, or make a connection to a (P+N+PE) power distribution where voltages do not exceed 240 VAC.

All installations should confirm that the product is reliably grounded according to the country's local electrical codes.

Battery Notice



Warning: This product contains a battery used to maintain product information. If the battery should need replacement it must be replaced by Service Personnel. Please contact Technical Support for assistance.

Risk of explosion if battery is replaced by an incorrect type.
Dispose of expended battery in accordance with local disposal regulations.



Attention: Ce produit renferme une pile servant à conserver les renseignements sur le produit. Le cas échéant, faites remplacer la pile par le personnel du service de réparation. Veuillez communiquer avec l'assistance technique pour du soutien.

Il y a risque d'explosion si la pile est remplacée par un type de pile incorrect. Éliminez les piles usées en conformité aux règlements locaux d'élimination des piles.

Battery Warning - Taiwan

警告

如果更換不正確之電池型式會有爆炸的風險，
請依製造商說明書處理用過之電池。

EMC Warnings

Japan (VCCI Class A)



Warning

This is a Class A product based on the standard of the VCCI Council. If this equipment is used in a domestic environment, radio interference may occur, in which case the user may be required to take corrective actions.

この装置は、クラスA機器です。この装置を住宅環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。 VCCI-A

Korea EMC Statement

이 기기는 업무용 환경에서 사용할 목적으로 적합성평가를 받은 기기로서 가정용 환경에서 사용하는 경우 전파간섭의 우려가 있습니다.