Extreme networks®

VSP 7400 Series Switches: Hardware Installation Guide

Legal Notice

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

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

Trademarks

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

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

For additional information on Extreme Networks trademarks, see: www.extremenetworks.com/company/legal/trademarks

Open Source Declarations

Some software files have been licensed under certain open source or third-party licenses. End-user license agreements and open source declarations can be found at: https://www.extremenetworks.com/support/policies/open-source-declaration/

Table of Contents

Preface

This guide provides the instructions and supporting information needed to install Extreme Networks® VSP 7400 Series switches:

The guide includes information about site preparation, installation, maintenance, and the switches' functionality.

Audience

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 software documentation for information about configuring VSP 7400 Series switches.

> **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.

Conventions

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

Text Conventions

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

When a feature, function, or operation pertains to a specific hardware product, the product name is used. When features, functions, and operations are the same across an

entire product family, such as ExtremeSwitching switches or SLX routers, the product is referred to as *the switch* or *the router*.

Table 1: Notes and warnings

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

Table 2: Text

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

Table 3: Command syntax

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

Terminology

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

Providing Feedback

The Information Development team at Extreme Networks has made every effort to ensure the accuracy and completeness of this document. We are always striving to improve our documentation and help you work better, so we want to hear from you. We welcome all feedback, but we especially want to know about:

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

If you would like to provide feedback, you can do so in three ways:

- In a web browser, select the feedback icon and complete the online feedback form.
- Access the feedback form at https://www.extremenetworks.com/documentation-feedback/.
- Email us at documentation@extremenetworks.com.

Provide the publication title, part number, and as much detail as possible, including the topic heading and page number if applicable, as well as your suggestions for improvement.

Getting Help

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

Extreme Portal

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

The Hub

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

Call GTAC

For immediate support: (800) 998 2408 (toll-free in U.S. and Canada) or 1 (408) 579 2826. For the support phone number in your country, visit: www.extremenetworks.com/support/contact

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

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

Subscribe to Product Announcements

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

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

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

Documentation and Training

Find Extreme Networks product information at the following locations:

Current Product Documentation

Release Notes

Hardware and software compatibility for Extreme Networks products

Extreme Optics Compatibility

Other resources such as white papers, data sheets, and case studies

Extreme Networks offers product training courses, both online and in person, as well as specialized certifications. For details, visit www.extremenetworks.com/education/.

Overview of the VSP 7400 Switches

The ExtremeSwitching VSP 7400 Series switches offer a versatile and efficient core/ aggregation switching functionality for campus environments. The VSP 7400 Series switches run the VOSS operating platform.

VSP 7400 Series switches include the following base models:

Table 4: VSP 7400 Models

Part no.	Model
VSP7400-32C	VSP 7432CQ switch with unpopulated fan and power-supply slots
VSP7400-32C-AC-F	VSP 7432CQ switch with six fan modules and one 750 W AC power supply unit (front-to-back airflow)
VSP7400-32C-AC-R	VSP 7432CQ switch with six fan modules and one 750 W AC power supply unit (back-to-front airflow)
VSP7400-48Y-8C	VSP 7400-48Y switch with unpopulated fan and power supply slots
VSP7400-48Y-8C-AC-F	VSP 7400-48Y switch with six fan modules and one 750 W AC power supply unit (front-to-back airflow)
VSP7400-48Y-8C-AC-R	VSP 7400-48Y switch with six fan modules and one 750 W AC power supply unit (back-to-front airflow)

Front-panel Ethernet ports can provide 25 Gb Ethernet connectivity using installable SFP28 optical models, or 100 Gb Ethernet connectivity using installable QSFP28 and QSFP+ optical modules. Depending on the switch, a port can be configured as either:

- An SFP28 based 10 Gb or 25 Gb port.
- A QSFP28 based 100 Gb port that can, with appropriate cabling, be partitioned/ channelized into four 25 Gb data lanes.

- A QSFP+ based 40 Gb port that can, with appropriate cabling, be partitioned/channelized into four 10 Gb data lanes.

For details about the port partitioning/channelizing options that are available on VSP 7400 Series switches, see Partitioning/Channelizing Switch Ports on page 12.

A serial console port on the front panel allows you to connect a terminal and perform local management. An Ethernet management port can be used to connect the system to a parallel management network for administration. Alternatively, you can use an Ethernet cable to connect this port directly to a laptop to view and locally manage the switch configuration. The Ethernet management port supports 10/100/1000 Mbps speeds.

A USB port can be used for network management or for attaching a removable memory module.

Switch cooling is provided by field-replaceable fan modules. Fan modules are available in two different models that direct the airflow either from front to back or from back to front. All installed fan modules must be of the same model, so that they all direct the airflow in the same direction.

Two power supply bays accommodate 750 W AC or DC power supplies. Supported power supply configurations include two AC, two DC, or one AC and one DC power supplies. configurations include Power supplies have integrated cooling fans that operate independently of the switch fans. Like the fan modules, the power supplies are available in models with either front-to-back or back-to-front cooling airflow.

Both front-to-back and back-to-front airflow options are available. However, on any given VSP 7400 Series switch, air must flow in the same direction for all installed fan modules and power supplies.

Partitioning/Channelizing Switch Ports

Channelization allows you to partition QSFP28 ports into four logical ports. In 100-Gigabit mode, each port can be partitioned into four logical 25-gigabit ports. In 40-gigabit mode, each port can be partitioned into four 10-gigabit ports. Channelization can be enabled on all ports of VSP 7432CQ, except port 28. Channelization is not supported on VSP 7400-48Y QSFP28 ports.

Logical port numbers are represented as `slot/port/sub-port` in the CLI when channelization is enabled. For example, when channelization is enabled on port 8 of VSP 7432CQ, the four logical ports are represented as 1/8/1, 1/8/2, 1/8/3 and 1/8/4 in the CLI.

VSP 7400 Series Operational Notes

The VSP 7400 Series has a PHYless design. The benefits of a PHYless design are lower powerconsumption and lower latency. However, due to the PHYless design, the

following transceivers that require electronic dispersion compensation (EDC) for proper operation are not supported:

- AA1403017-E6: 1-port 10GBASE-LRM SFP+
- AA1403016-E6: 1-port 10GBase-ZR/ZW SFP+

The AA1403165 10GBASE-ZR CWDM DDI SFP+ transceiver can be substituted forAA1403016-E6 10GBASE-ZR/ZW SFP+.

VSP 7432CQ Features

The front panel of the VSP 7432CQ switch includes:

- 32 100-gigabit Ethernet ports capable of supporting passive copper QSFP28/QSFP+ and active fiber QSFP28/ QSFP+. With a few exceptions, noted below, these ports are configurable for 100 Gb, 40 Gb, 4x25 Gb, and 4x10 Gb modes. For information about QSFP28 and QSFP+ optical modules, see the *Extreme Networks Pluggable Transceivers Installation Guide*.

> **Note**
> Exception: Physical port 28 cannot be partitioned.

> **Note**
> When Fabric Connect is enabled, physical ports 31 and 32 are reserved for internal use. Refer to *Administering VSP Operating System Software* for details.

- RJ45 serial console port used to connect a terminal and perform local management.
- USB port for access to external storage.
- RJ45 out-of-band 10/100/1000BASE-T management Ethernet port.
- LEDs to indicate port status and switch operating conditions. For a description of the LEDs and their operation, see VSP 7400 Series Switch LEDs on page 66.

Figure 1: VSP 7432CQ Switch - Front Panel

1 = QSFP28/QSFP+ Ethernet ports	3 = USB port
2 = Console port: RJ45	4 = Management port: RJ45

The rear panel of the VSP 7400 switch includes:

- Two power supply bays for 750 W AC or DC power supplies.
- Six bays for replaceable fan modules.

> **Note**
>
> The color of the tab on the fan tray indicates the airflow direction:
> - Red: front-to-back
> - Blue: back-to-front
>
> The operating-system software cannot display the airflow direction.
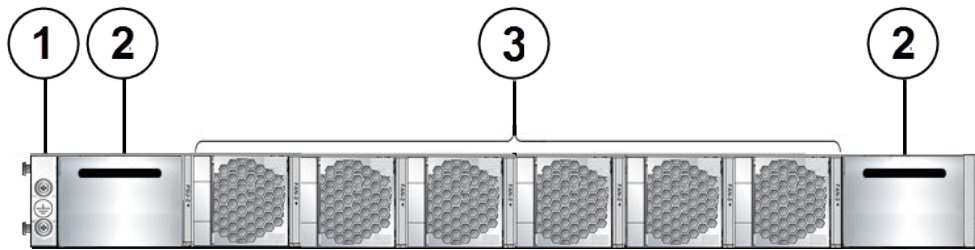
Figure 2: VSP 7432CQ Switch - Rear Panel

1 = Grounding point	3 = Fan modules
2 = Power supply slots (unpopulated)	

> **Note**
>
> The power supply slot on the left is for power supply number two and the power supply slot on the right is for power supply number one.

VSP 7400-48Y Features

The front panel of the VSP 7400-48Y switch includes:

- 48 10/25-gigabit Ethernet ports capable of supporting passive copper SFP28 and active fiber SFP28.
- 8 100-gigabit Ethernet ports capable of supporting passive copper QSFP28 and active fiber QSFP28. These ports are configurable for 100Gb and 40Gb modes. For information about SFP28 and QSFP28 optical modules, see the *Extreme Networks Pluggable Transceivers Installation Guide*

> **Note**
>
> Channelization is not supported on these ports.
> Data Ports 55 and 56 are reserved.

- RJ45 serial console port used to connect a terminal and perform local management.
- USB port for access to external storage.
- RJ45 out-of-band 10/100/1000BASE-T management Ethernet port.
- LEDs to indicate port status and switch operating conditions. For a description of the LEDs and their operation, see VSP 7400 Series Switch LEDs on page 66.
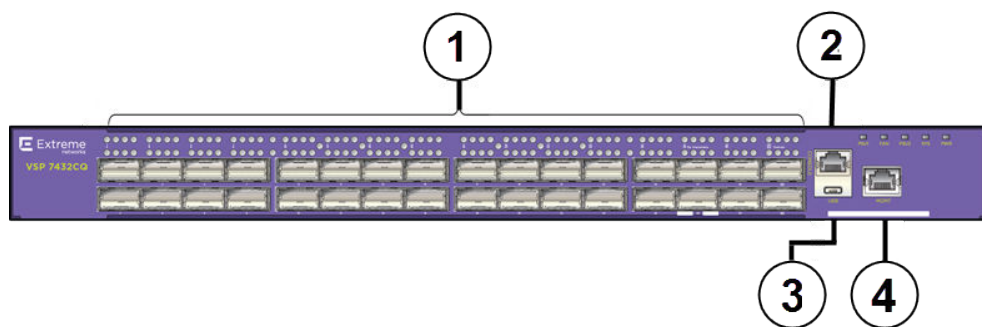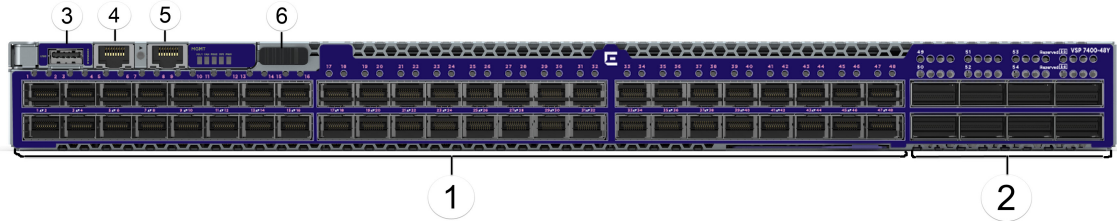
Figure 3: VSP 7400-48Y Switch - Front Panel

1 = SFP28 Ethernet ports	3 = USB port	5 = Management port: RJ45
2 = QSFP28 Ethernet ports	4 = Console port: RJ45	6 = Management Set sliding button*

* - The Management Set sliding button can be slid to the right in order to free the Management Set for removal.

The rear panel of the VSP 7400 switch includes:

- Two power supply bays for 750 W AC or DC power supplies.
- Six bays for replaceable fan modules.

> **Note**
> The color of the tab on the fan tray indicates the airflow direction:
> ◦ Red: front-to-back
> ◦ Blue: back-to-front
>
> The operating-system software cannot display the airflow direction.
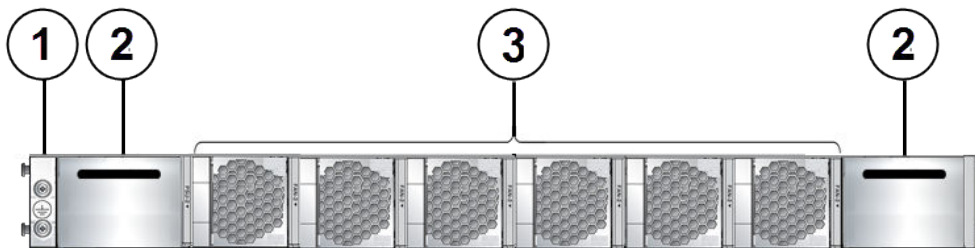
Figure 4: VSP 7400-48Y Switch - Rear Panel

1 = Grounding point	3 = Fan modules
2 = Power supply slots (unpopulated)	

> **Note**
> The power supply slot on the left is for power supply number two and the power supply slot on the right is for power supply number one.

VSP License Options

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

Power Supplies for Use with Your Switch

Each VSP 7400 Series switch runs with two replaceable internal power supply units that provide all of the power needed for the switch to operate. You can remove one power supply without interrupting the switch's operation.

The power supply units can be both AC power supplies, DC power supplies, or an AC and a DC power supply.

For more information, see the following topics.

-
-

> **Note**
> The power supply slot on the left is for power supply number two and the power supply slot on the right is for power supply number one.

750 W AC Power Supply

Two 750 W AC power supply options, with front-to-back or back-to-front airflow, are provided for VSP and SLX series switches.

- VSP/SLX 750W AC power supply - front-to-back airflow (part no. XN-ACPWR-750W-F)
- VSP/SLX 750W AC power supply - back-to-front airflow (part no. XN-ACPWR-750W-R)

> **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 81.

For information on installing or replacing an AC power supply, see Installing a 750 W Internal AC Power Supply on page 49.

LEDs on the 750 W DC power supply provide information on the unit's operational status. See 750 W AC Power Supply LEDs on page 69 for details.

750 W DC Power Supply

Two 750 W DC power supply options, with front-to-back or back-to-front airflow, are provided for VSP and SLX series switches.

- VSP/SLX 750W DC power supply - front-to-back airflow (part no. XN-DCPWR-750W-F)
- VSP/SLX 750W DC power supply - back-to-front airflow (part no. XN-DCPWR-750W-R)

For information on installing or replacing a DC power supply, see Installing a 750 W Internal DC Power Supply on page 52.

LEDs on the 750 W DC power supply provide information on the unit's operational status. See 750 W DC Power Supply LEDs on page 69 for details.

Preparing to Install

Before you install your Extreme Networks equipment, careful planning can help ensure that it is used effectively and help prepare you for future growth.

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 Safety and Regulatory Information on page 83.

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.

This chapter covers the following aspects of site preparation:

1. Operating Environment Requirements on page 20

   Verify that your site meets all environmental and safety requirements.
2. Rack Specifications and Recommendations on page 23

   Ensure that mounting racks are safe and appropriate for the equipment.
3. Evaluate and Meet Cable Requirements on page 25

   Understand the different cabling options and select the ones that best address your needs.

4. Meeting Power Requirements on page 32

   Ensure that power supplies are safe and appropriate for the equipment.

   For details about the equipment's power requirements, see the Technical Specifications on page 71.

5. Follow Applicable Industry Standards on page 34

   Understand the applicable standards and ensure that they are being followed.

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 5 are authorities on electrical codes.

Table 5: 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 23 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.

Controlling 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 no higher than 40°C (104°F). (Some configurations support higher operating temperatures. See Environmental Data on page 78 for details.)
- 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).

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 immediately by removing and then restoring all line power to the system.

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

Controlling 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 14 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.

Providing Adequate Space for the Rack

Provide enough space in front of and behind the equipment, so that you can service it easily and so that airflow is not impeded.

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

> **Note**
> The equipment does not have a switch for turning power 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.

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.
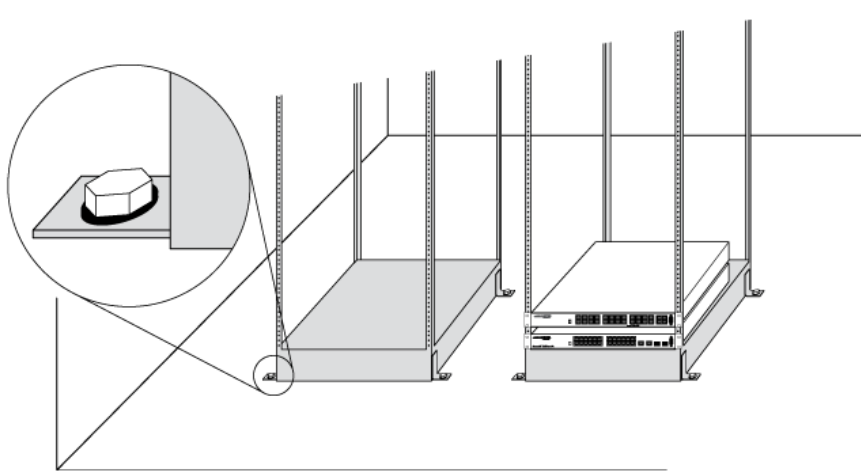
Figure 5: Properly Secured Rack

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 6 on page 27.
- 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.
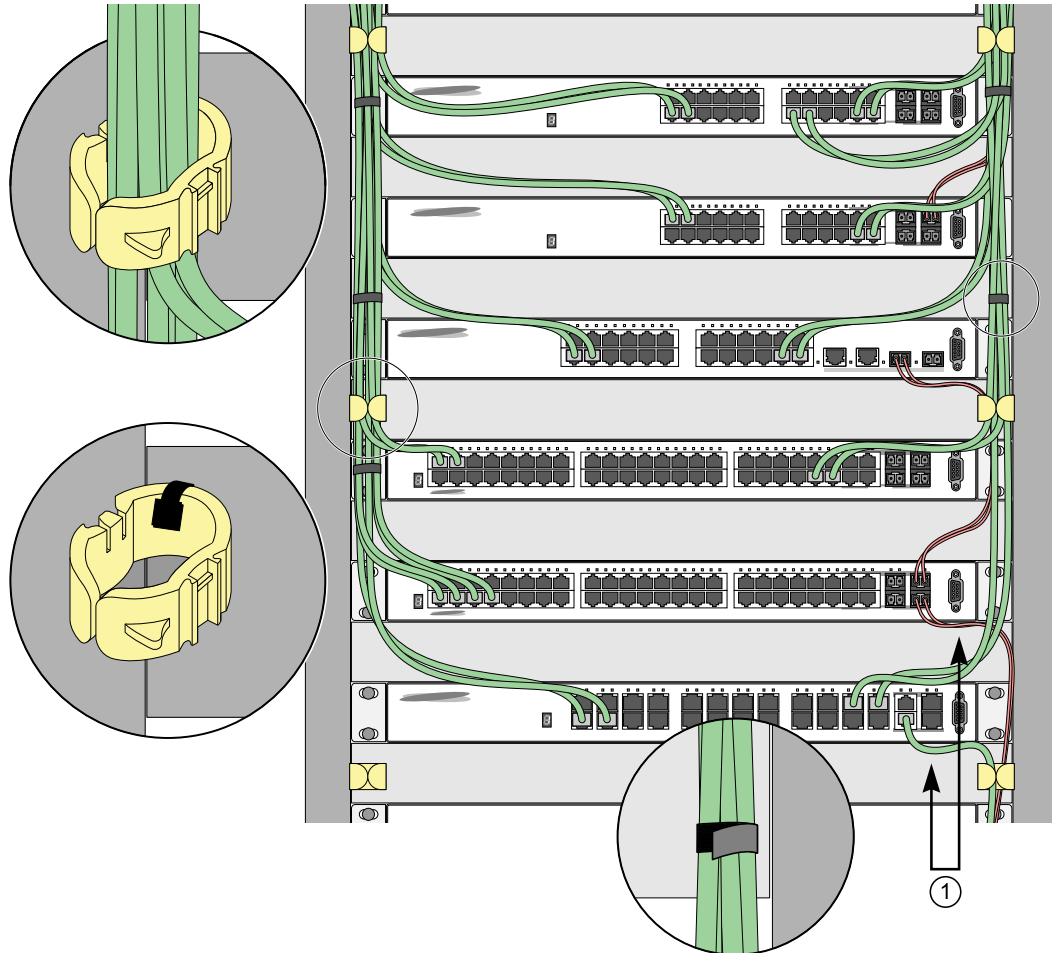- Keep all ports and connectors free of dust.

Figure 6: 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, example, 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 7.

> **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.
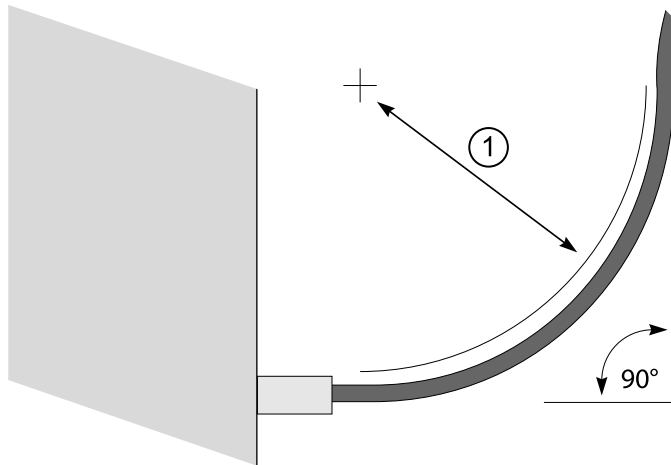
Figure 7: Bend Radius for Fiber Optic Cable

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

Cable Distances and Types

Table 6 on page 28 shows one example of cable media types and maximum distances that support reliable transmission in accordance with international standards (except where noted). Refer to *Extreme Networks Pluggable Transceivers Installation Guide* for descriptions of optics and cables, as well as a complete list of supported cable lengths.

Refer to *Extreme Hardware/Software Compatibility and Recommendation Matrices* for a list of the cable types that are compatible with your equipment.

Table 6: Cable Distances and Types

Standard	Media Type	MHz·km Rating	Maximum Distance (Meters)
1000BASE-SX (850nm optical window)	50/125 μm multimode fiber	400	500
	50/125 μm multimode fiber	500	550
	62.5/125 μm multimode fiber	160	220
	62.5/125 μm multimode fiber	200	275

Table 6: Cable Distances and Types (continued)

Standard	Media Type	MHz·km Rating	Maximum Distance (Meters)
1000BASE-LX (1300nm optical window)	50/125 μm multimode fiber	400	550
	50/125 μm multimode fiber	500	550
	62.5/125 μm multimode fiber	500	550
	10/125 μm single-mode fiber	–	5,000
	10/125 μm single-mode fiber	–	10,000
1000BASE-ZX (1550nm optical window)	10/125 μm single-mode fiber	–	80,000
100BASE-LX100 (1550nm optical window)	10/125 μm single-mode fiber	–	100,000
1000BASE-BX10 (1490nm optical window) (1310nm optical window)	10/125 μm single-mode fiber	–	10,000
1000BASE-LX70 (1550nm optical window)	10/125 μm single-mode fiber	–	70,000
10/100/1000BASE-T SFP	(1 Gbps link) Category 5 and higher UTP cable	–	100
	(100 Mbps link) Category 5 and higher UTP cable	–	150
	(10 Mbps link) Category 5 and higher UTP cable	–	250
10GBASE-T SFP+	(10 Gb links) Category 6A and higher UTP cable	–	30
10GBASE-SR SFP+ (850nm optical window)	62.5 mm multimode fiber	160	26
	62.5 mm multimode fiber (OM1)	200	33
	50 mm multimode fiber	400	66
	50 mm multimode fiber (OM2)	500	82
	50 mm multimode fiber (OM3)	2000	300
10GBASE-LR SFP+ (1310nm optical window)	10/125 μm single-mode fiber	–	10,000

---

[1] Proprietary to Extreme Networks. Connections between two Extreme Networks 1000BASE-LX interfaces that use 10/125 μm single-mode fiber can use a maximum distance of 10,000 meters.

Table 6: Cable Distances and Types (continued)

Standard	Media Type	MHz·km Rating	Maximum Distance (Meters)
10GBASE-ER SFP+ (1550nm optical window)	10/125 μm single-mode fiber	–	40,000
40GBASE-SR4 QSFP+ (850nm optical window)	50 mm multimode fiber (OM3)	–	100
	50 mm multimode fiber (OM4)		150
1000BASE-T	Category 5 and higher UTP cable	–	100
100BASE-TX	Category 5 and higher UTP cable	–	100
10BASE-T	Category 3 and higher UTP cable	–	100

Table 7 and Table 8 on page 30 list direct-attach cables available from Extreme Networks.

Table 7: Extreme Networks 100Gb Direct-Attach Cables

Cable Type	Part Number	Length
QSFP28-QSFP28 Direct attach passive copper cable	10411 or AA1405029-E6	1 meter
	10413 or AA1405031-E6	3 meters
	10414 or AA1405032-E6	5 meters
QSFP28-4xSFP28 (4x25Gb) Direct attach passive copper breakout	10421	1 meter
	10423	3 meters
	10424	5 meters
QSFP28-4xSFP28 (4x25Gb) Active optical breakout cable	10444	20 meters

Table 8: Extreme Networks 40Gb Direct-Attach Cables

Cable Type	Part Number	Length
QSFP+ to QSFP+ Direct attach cable	AA1404037-E6	0.5 meter
	AA1404029-E6	1 meter
	AA1404030-E6	2 meters
	AA1404031-E6	3 meters
	AA1404032-E6	5 meters

Table 8: Extreme Networks 40Gb Direct-Attach Cables (continued)

Cable Type	Part Number	Length
QSFP+ to QSFP+ Active optical cable	AA1404028-E6	10 meters active optical
QSFP+ to 4xSFP+ Breakout cable	AA1404033-E6	1 meter
	AA1404035-E6	3 meters
	AA1404036-E6	5 meters
	AA1404041-E6	10 meters active optical

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 8 shows examples of recommended and non-recommended connector jacket types.

Not recommended

Better

Best

SPG_001

Figure 8: RJ45 Connector Jacket Types

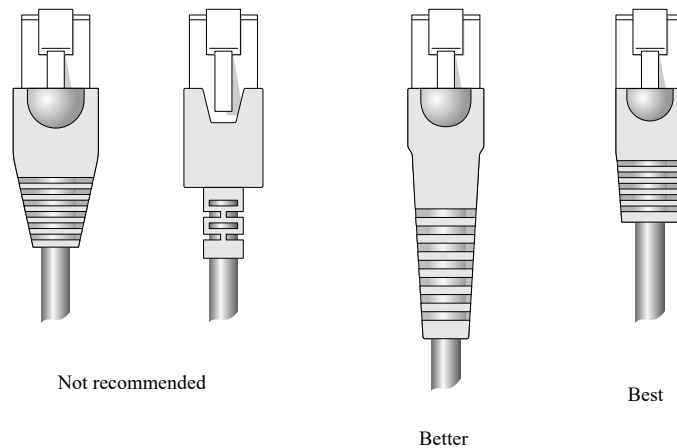## Prevent Radio Frequency Interference (RFI)

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.

Meeting 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, plug your system into a surge suppressor.

For detailed power specifications for your equipment, see "Technical Specifications."

Requirements for Power Cords

Most ExtremeSwitching 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.

AC power cords must meet the requirements listed in Power Cord Requirements for AC-Powered Switches and AC Power Supplies on page 81.

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 34.)

> **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 = Volts x Amperes
3. Add the VA from all the pieces of equipment together to find the total VA requirement.
   To determine the minimum volt-amperage 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: www.ansi.org or www.tiaonline.org.

Installing Your Switch

Before you attempt to install or remove an Extreme Networks switch, read the precautions in Safety Considerations for Installing Switches on page 36.

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:

1. Prepare to install the switch.
   See What You Will Need for the Installation on page 36.
2. Install the switch in the rack.
   See Attaching the Switch to a Two-Post Rack on page 43.
3. Install optional components: optical transceivers and cables.
   See the instructions in Installing Optional Components on page 48.
4. If your switch does not come with an installed internal power supply, install one or two power supplies.
   See Installing Internal Power Supplies on page 49.

   > **Note**
   > Be aware of whether the power supply you are installing is AC-powered or a DC-powered. The installation instructions are different depending upon what type of power is used.

5. Power up the switch.
   See Turn on the Switch on page 56.
6. Connect network interface cables.
   See Connect Network Interface Cables on page 57.

7. Perform initial network connection and configuration.

See Activating and Verifying the Switch on page 58.

Safety Considerations for Installing Switches

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 DC power cables.
> Disconnect the ground wire **after** you disconnect all DC 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 on page 83 for additional safety information.
> See Technical Specifications on page 71 for additional information regarding regulatory compliance certifications.

What You Will Need for the Installation

Ensure that you have followed the guidance in "Preparing to Install," 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. Allow 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 *Quick Reference Guide* for your switch model 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 screwdriver to attach bracket screws that are provided with the switch. Use a magnetic screwdriver.
- 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 81.
- ESD-preventive wrist strap for installing optional ports at the back of the switch.

Attaching the Switch to a Rack

To attach a switch to a four-post or two-post rack, follow the steps in the appropriate section:

- Attaching the Switch to a Four-Post Rack on page 37
- Attaching the Switch to a Two-Post Rack on page 43

> **Note**
> - When you install Extreme Networks switches, we recommend that you have two people to maneuver the switch and the mounting hardware.
> - Take care to load the rack so that it is not top-heavy. Start installing equipment at the bottom and work up.

After the switch is attached to the rack, refer to Remove the Switch from the Rack on page 62 if you need to remove it.

Attaching the Switch to a Four-Post Rack

A four-post rack-mounting kit is included in the box with your switch. The kit contains an instruction sheet, along with the following components:

- Two mounting brackets, known as *inner member* in the instruction sheet. These pieces attach directly to both sides of the switch housing.
- Two slider assemblies, one for each side of the switch. Each slider assembly consists of an outer piece that is secured to the rack and a sliding rail to which you will attach the corresponding mounting bracket. These pieces are known on the instruction sheet as the *outer member* and *intermediate member*.
- Mounting ears - Black rack ears with a thumb screw in the middle (2 count)
- Black mounting ear screws (4 count)

To attach your switch to a four-post rack, follow these steps:

1. On the sides of switch, locate and remove the 2 black screws next to the data ports of the switch. Repeat as needed for the other side.
2. Using the provided mounting ear screws, attach each of the mounting ears using the holes exposed in the previous step. The mounting ears should be flush with the faceplate of the switch.

   See Figure 9for the correct orientation.
3. Extend the slider assemblies to the full extent. Locate the small white release tab on the mounting bracket, and push it toward the blue release tab, allowing the mounting bracket to slide the rest of the way off the slider assemblies. Repeat for the other slider assembly.
4. Attach a mounting bracket to one side of the switch housing.

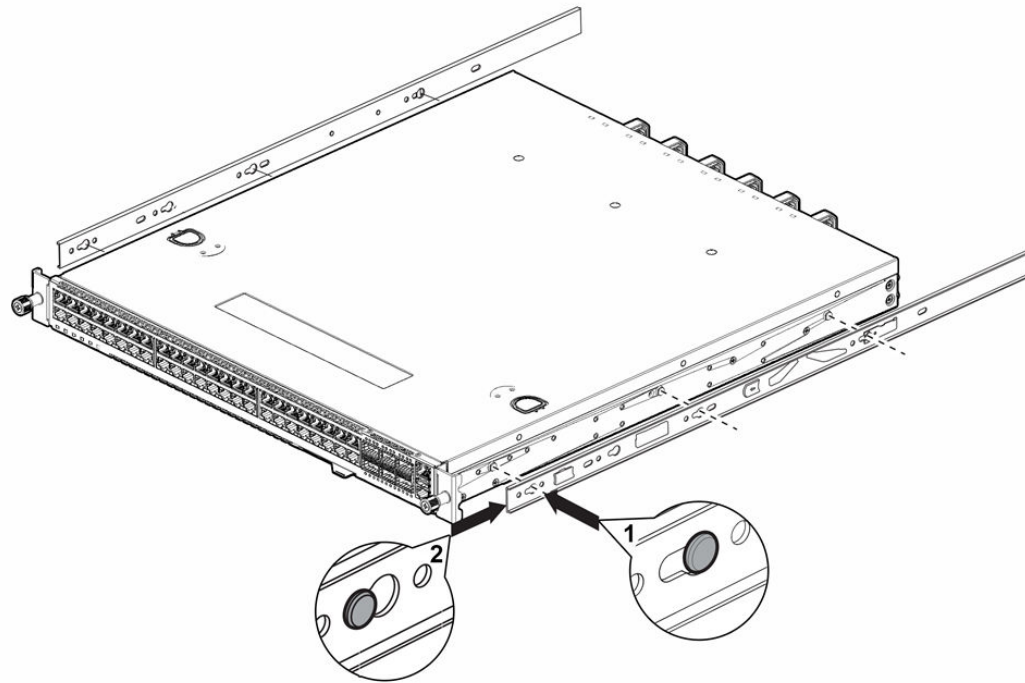   Snap the mounting bracket onto the housing. Then anchor it in place using the screws provided. See Figure 9.

Figure 9: Attaching a Mounting Bracket to One Side of the Switch Housing

5. Repeat step 4 to attach the other mounting bracket to the other side of the housing.

6. Attach a slider assembly to the front and rear rack posts on one side.

   a. Push the pegs on the front of the slider assembly through the holes in the front
      rack post, until they snap into place.
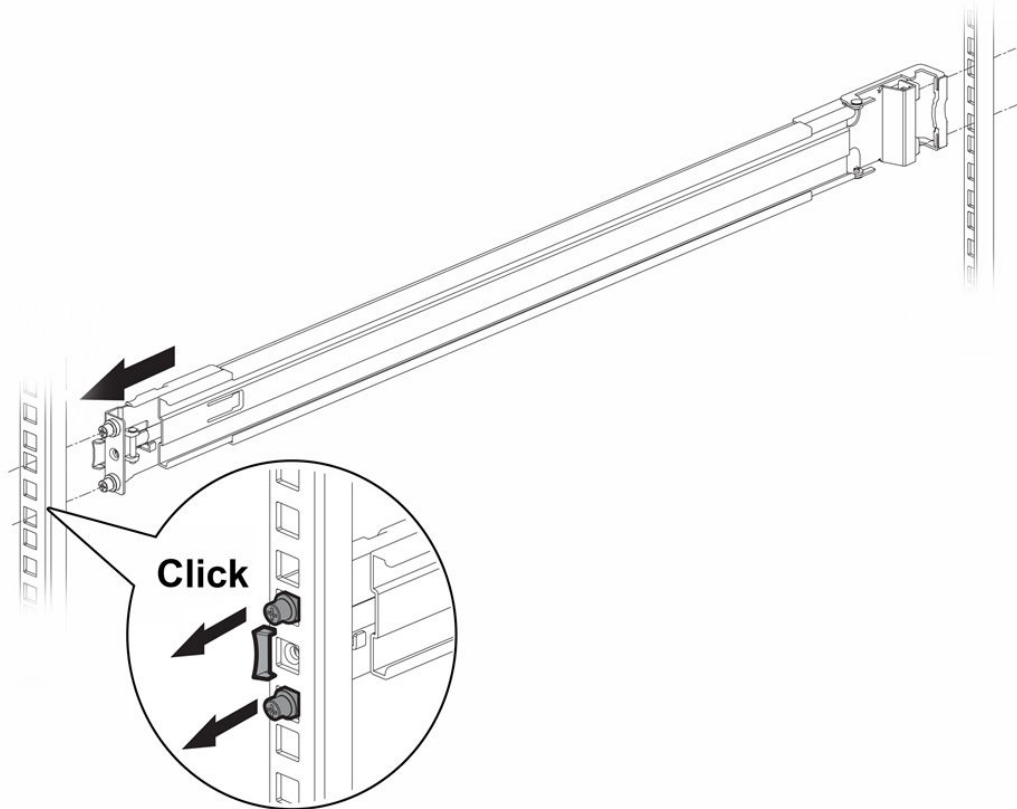
      See Figure 10.

Figure 10: Attaching the Slider Assembly to the Front Rack Post

   b. Extend the slider assembly until its rear clamp fits around the rear rack post.

c. Ensure that the slider assembly is level.

If necessary, move it up or down at the rear of the rack.

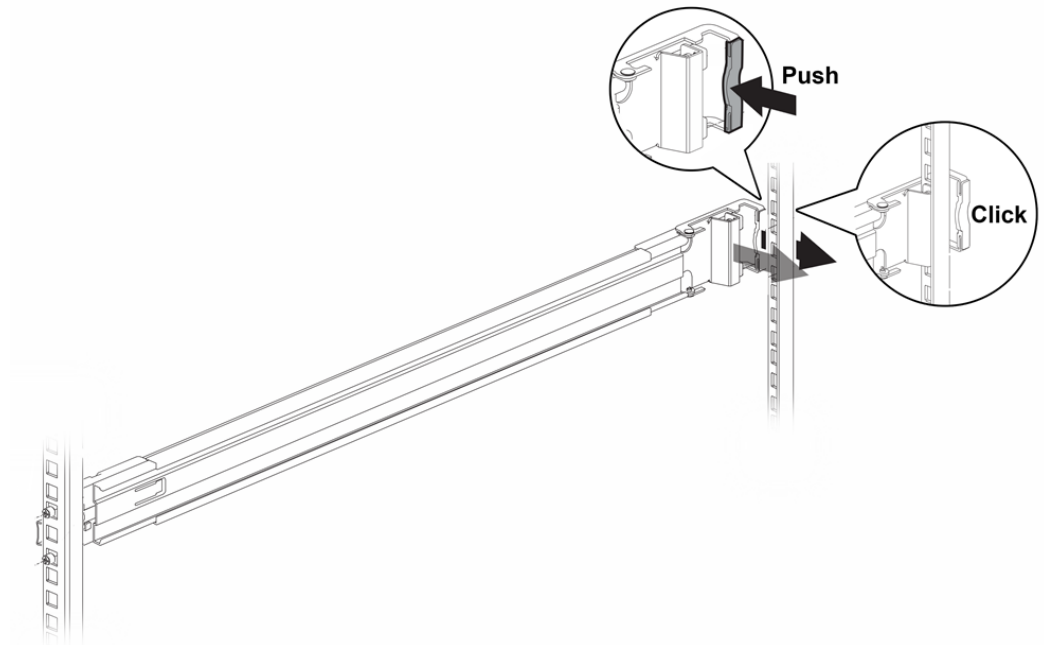d. Snap the rear clamp into place.

See Figure 11.

Figure 11: Attaching the Slider Assembly to the Rear Rack Post

7. Repeat step 6 to attach the other slider assembly to the front and rear rack posts on the other side.

8. On both sides, locate the sliding rails (intermediate members) in the slider assemblies, and pull them out to their full extent. Ensure that the plastic slider on the intermediate member is in the locked position:
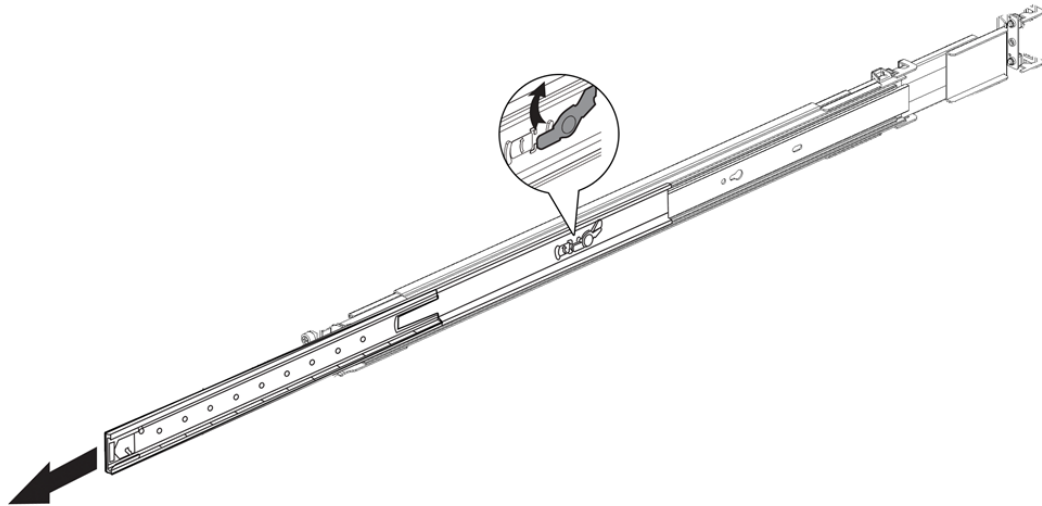

Figure 12: Extending the Slider Assembly to Fit the Rack

The sliding rails remain attached to the slider assembly.

9. Screw the mounting ear thumbscrews into the rack rails to hand tightness.
10. Lift the switch into position and insert the mounting brackets into the slider assemblies on both sides.
11. Push gently until both mounting brackets engage with the slider assemblies. See Figure 13.
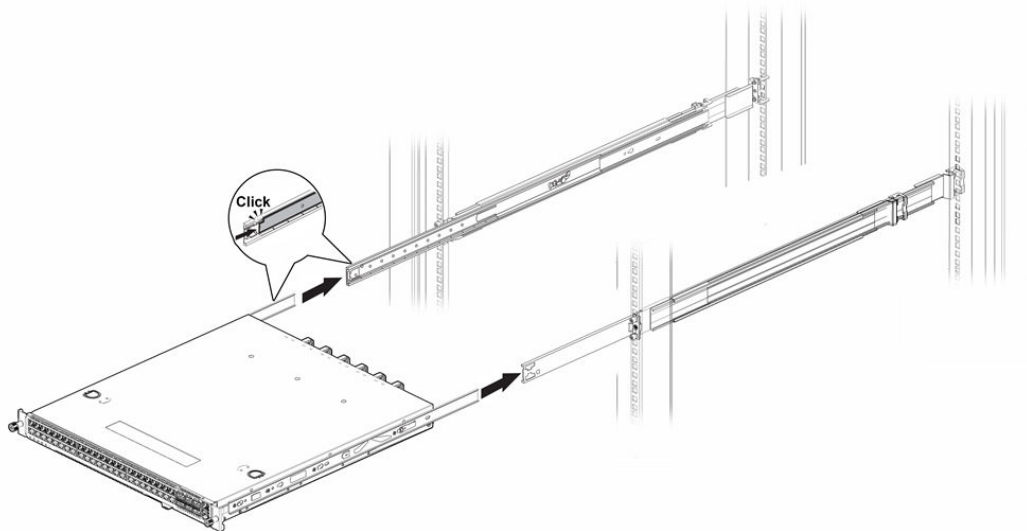

Figure 13: Engaging the Mounting Brackets with the Rail Assemblies

12. Release the tabs on both slider assemblies, and slide the switch back until it is firmly in place. Screw the mounting ear thumbscrews into the rack rails to hand tightness. See Figure 14.
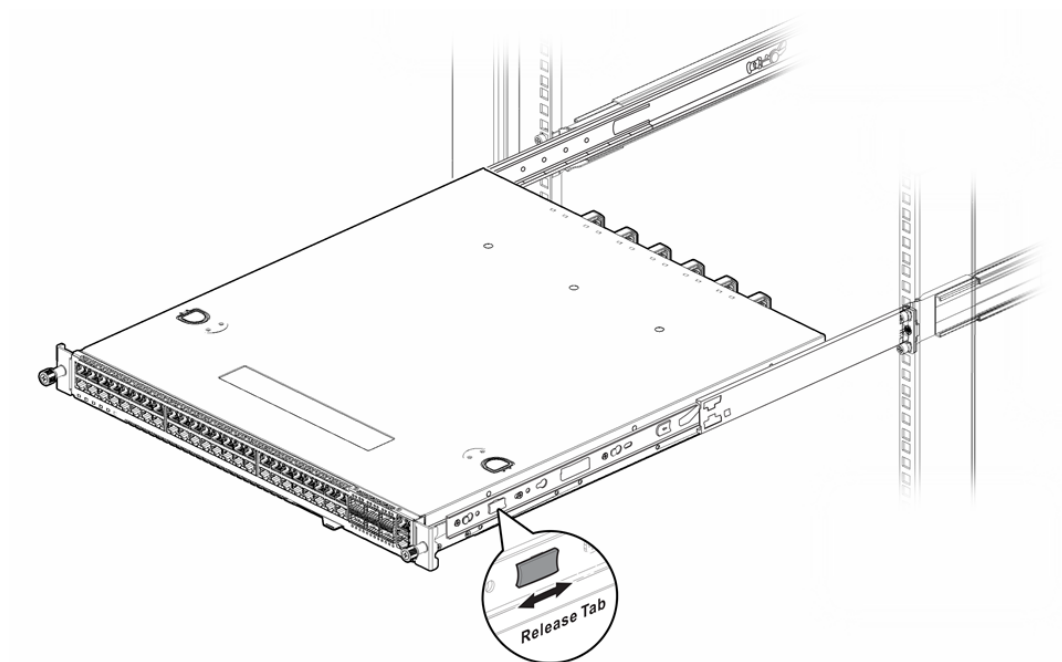

Figure 14: Pushing the Mounting Brackets into the Rail Assemblies

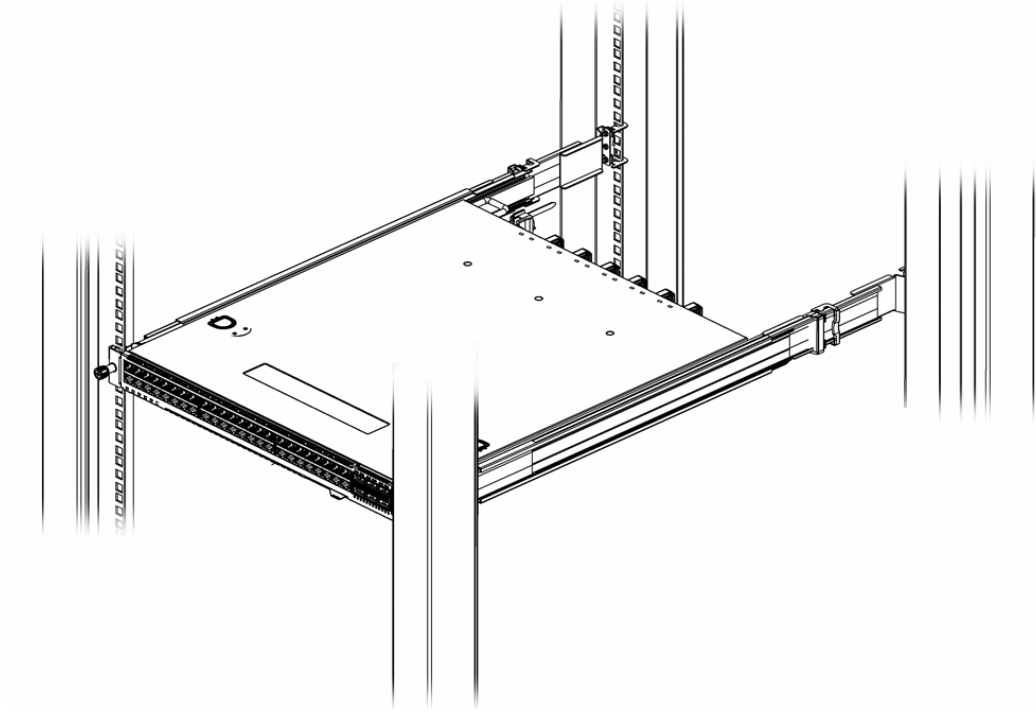The completed assembly is shown in Figure 15.

Figure 15: Completed Installation: Switch in 4-Post Rack

13. Verify that the switch is level and is firmly attached to the rack.

If your switch comes with installed AC power supplies, skip to Turn on the Switch on page 56.

If your switch does not have an installed power supply, install one or two power supplies using the instructions in Installing Internal Power Supplies on page 49.

Attaching the Switch to a Two-Post Rack

You can attach your switch to a two-post rack in either of two configurations:
- Front mount
- Mid-mount

The side of the switch has different sets of holes for attaching mounting brackets in either configuration.

Brackets for a two-post mount are not included in the box with your switch. However, they can be ordered separately using part number XN-2P-RKMT299.

To attach your switch to a two-post rack, follow these steps:

1. On one side of the switch, attach one of the short mounting brackets to the switch housing.

   a. For a front mount, position the bracket over the holes so that the flange (ear) is even with the front of the switch, as shown in Figure 16.
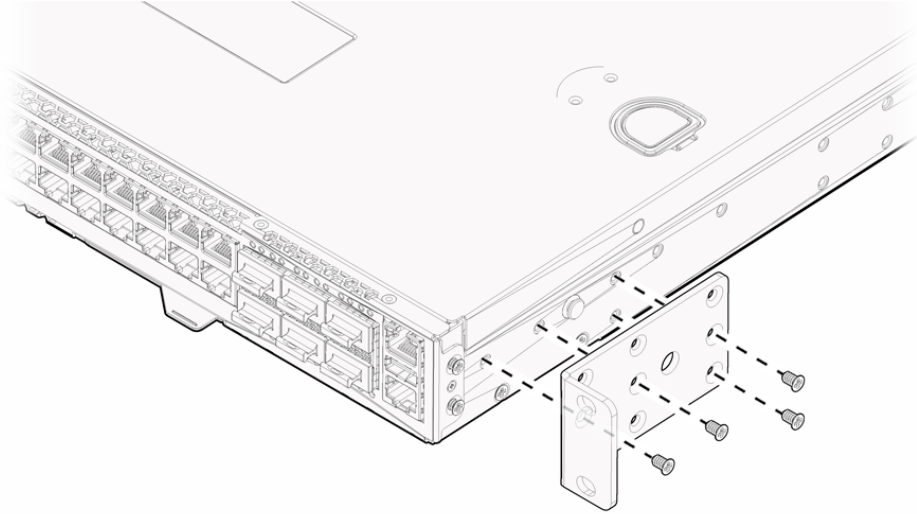

Figure 16: Attaching a Short Mounting Bracket (Ear): Front of Switch

b. For a mid-mount, position the bracket so that the flange (ear) is positioned slightly more than halfway between the front and back of the switch, as shown in Figure 17.

Figure 17: Attaching a Short Mounting Bracket (Ear): Middle of Switch

c. Use four small mounting screws (provided) to attach the bracket to the switch.

2. Attach the other short mounting bracket to the other side of the switch housing, as you did in step 1.

3. Attach a long mounting bracket to one side of the switch housing and to the rack post.

a. Position the long bracket over the holes between the front and the middle of the switch. Orient it so that its flange (ear) rests against the rack post.

See Figure 18 and Figure 19.

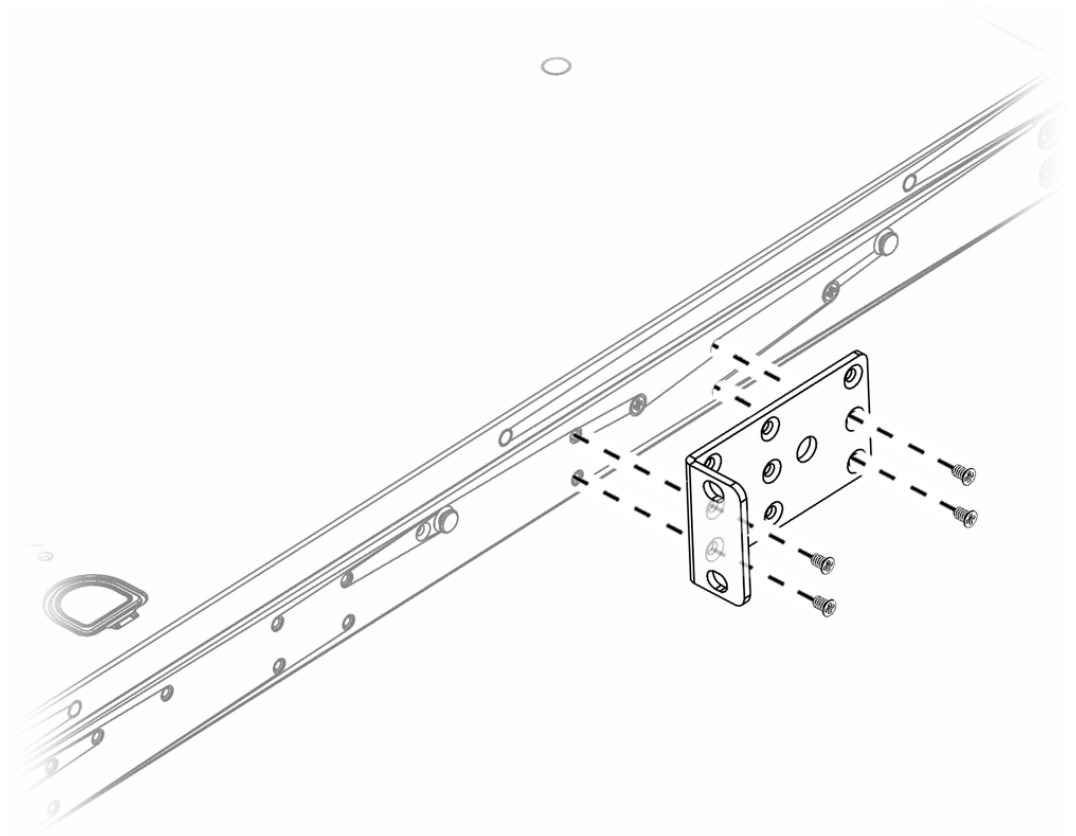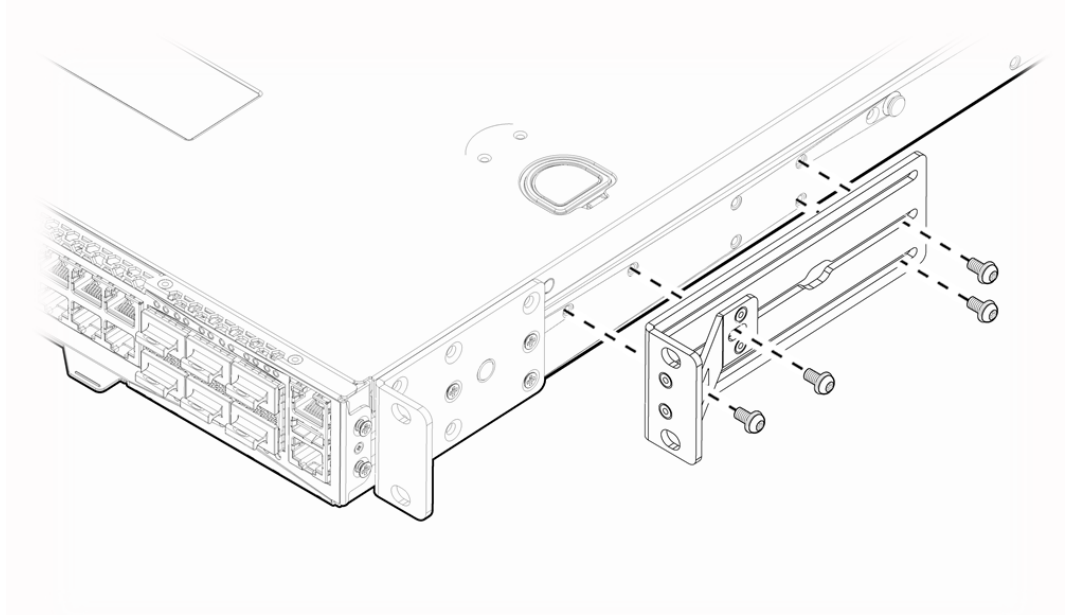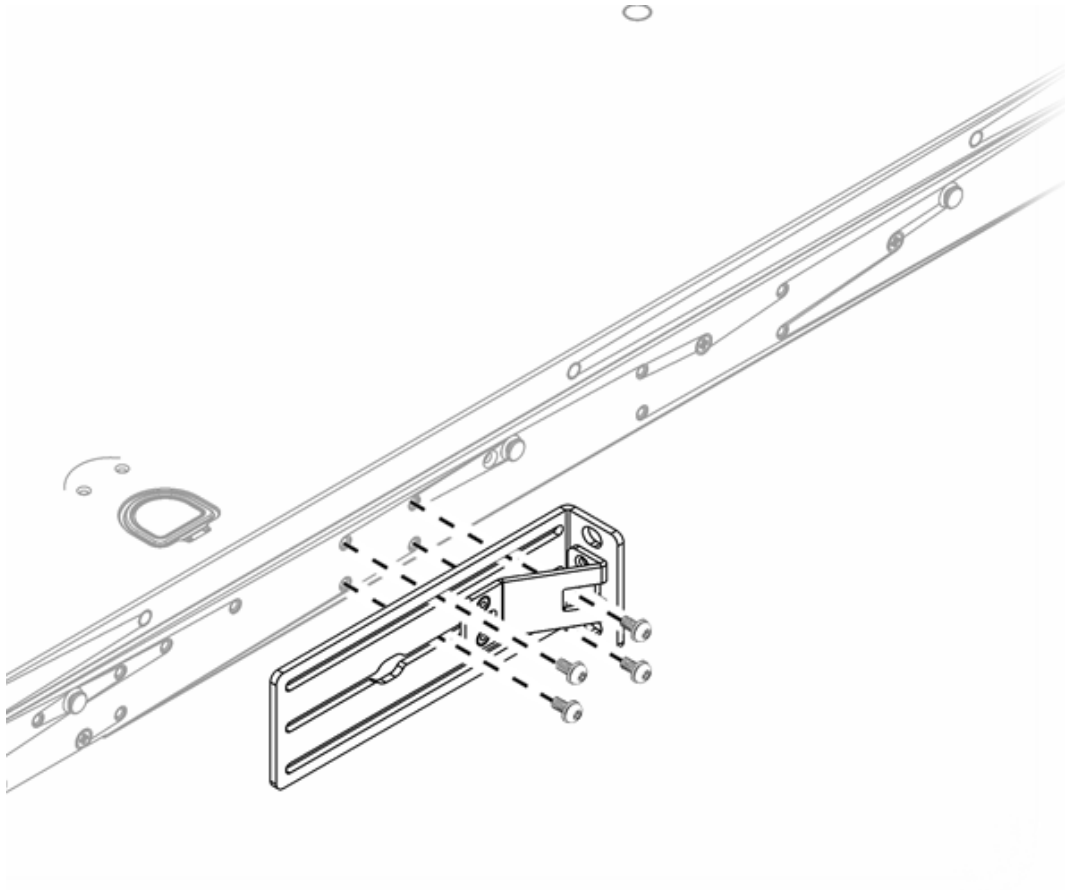**Figure 18: Attaching a Long Mounting Bracket: Front of Switch**

Figure 19: Attaching a Long Mounting Bracket: Middle of Switch

   b. Use four small mounting screws (provided) to attach the bracket to the switch.

   c. Secure the long bracket to the rack post.

      (Rack-mounting screws are not provided.)

4. Repeat step 3 to attach the other long bracket on the other side of the switch.

5. Tilting the switch slightly, lift it into the rack so that the mounting brackets align with the rack posts.

   If the switch cannot be tilted (because other equipment is mounted directly above and below), remove one or both short mounting brackets from the switch. Lift the switch into position, secure the flanges (ears) on the long brackets to the rack posts, and then reattach the short brackets.

6. Secure the flanges (ears) on both sides of the switch to the rack posts, using screws that are appropriate for the rack.

   (Rack-mounting screws are not provided.)

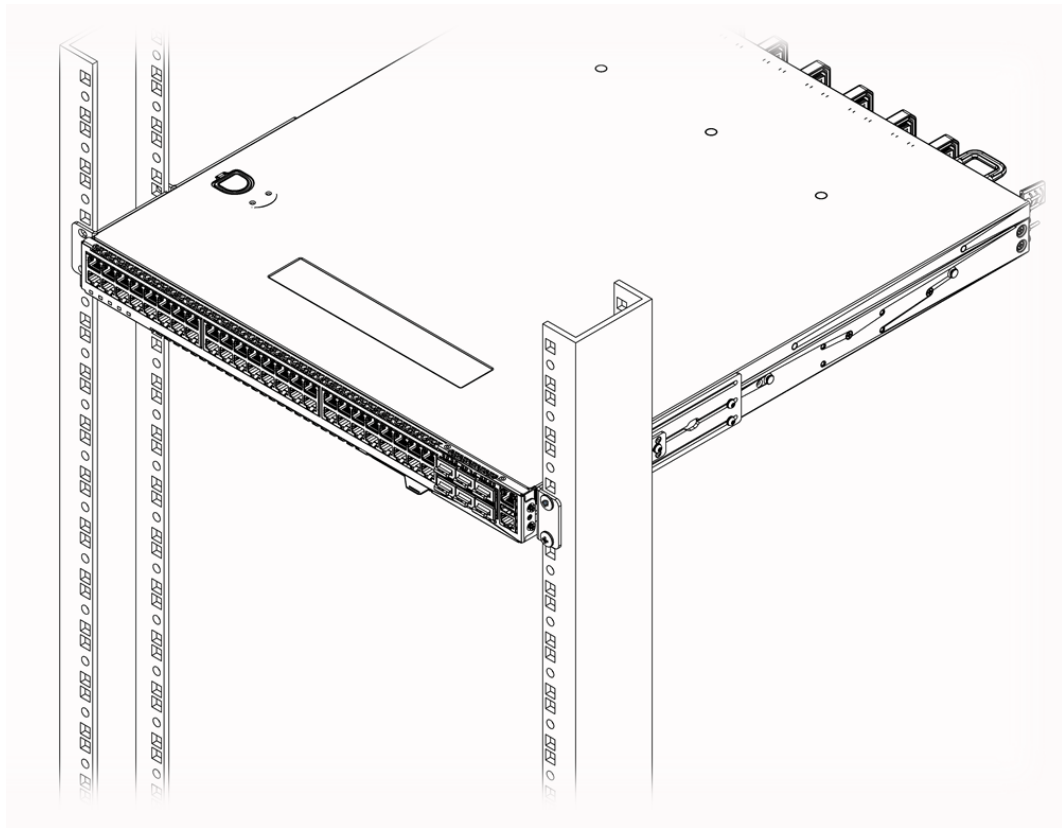   The completed installation is shown in Figure 20 and Figure 21.

Figure 20: Two-Post Front Mount: Complete
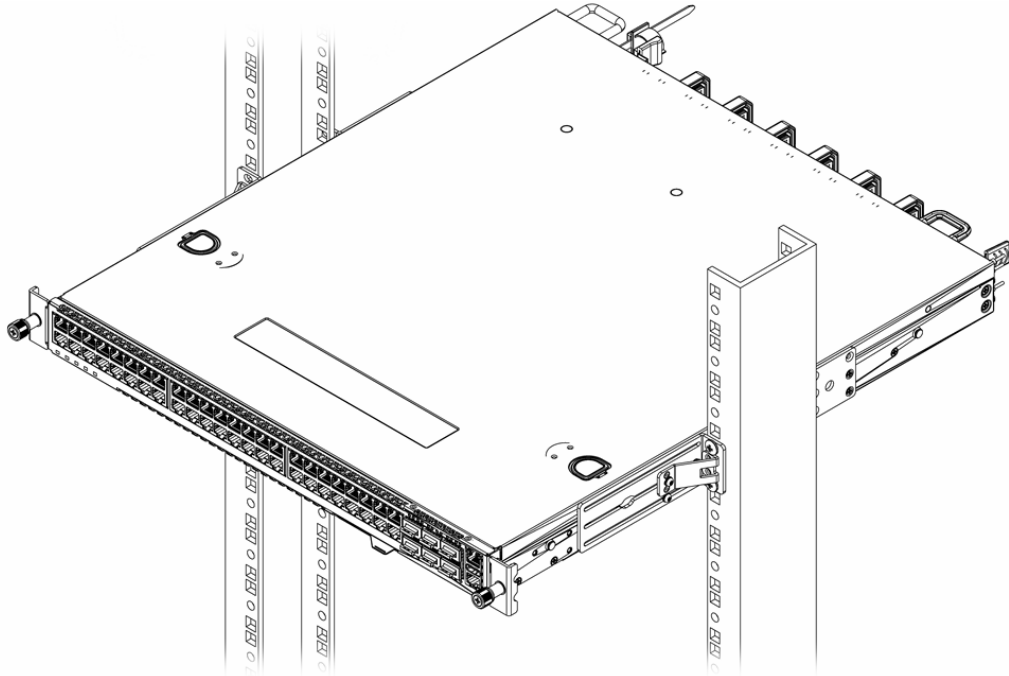
Figure 21: Two-Post Mid-Mount: Complete

7. Verify that the switch is level and is firmly attached to the rack.

If your switch comes with installed AC power supplies, skip to Turn on the Switch on page 56.

If your switch does not have an installed power supply, install one or two power supplies using the instructions in Installing Internal Power Supplies on page 49.

Installing Optional Components

After the switch is secured to the rack, install optional components.

ExtremeSwitching switches support the use of pluggable transceivers and cables in the SFP+, SFP28, QSFP+, and QSFP28 formats.

For a list of the optical components supported with ExtremeSwitching 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 unpopulated SFP+, SFP28, QSFP+, and QSFP28 ports.

Installing Internal Power Supplies

If your switch does not come with an installed internal power supply, you can install one or two power supplies as needed.

The VSP 7400 Series switches support 750 W internal power supply units. The switch supports two AC power supplies, two DC power supplies, or one AC and one DC power supply.

Follow the instructions in the following sections to install the appropriate power supply and connect power to the switch.

> **Note**
>
> The power supply slot on the left is for power supply number two and the power supply slot on the right is for power supply number one.

Installing a 750 W Internal AC Power Supply

To install a 750 W AC power supply in a switch, follow these instructions.

All installed power supplies must have the same airflow direction (front-to-back or back-to-front) and must match the airflow direction of the installed fan modules.

> **Warning**
>
> To prevent an electrical hazard, make sure that the AC power cord is not connected to the power supply before you install the power supply in the power supply bay.

> **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.

1. If necessary, remove a blank panel from the back of the switch.
2. Verify that the new power supply is right side up.
3. Verify that the new power supply's airflow direction (front-to-back or back-to-front) is compatible with the other installed power supply (if any) and with the installed fan modules.

4. Carefully slide the power supply all the way into the power supply bay (see Figure 22).
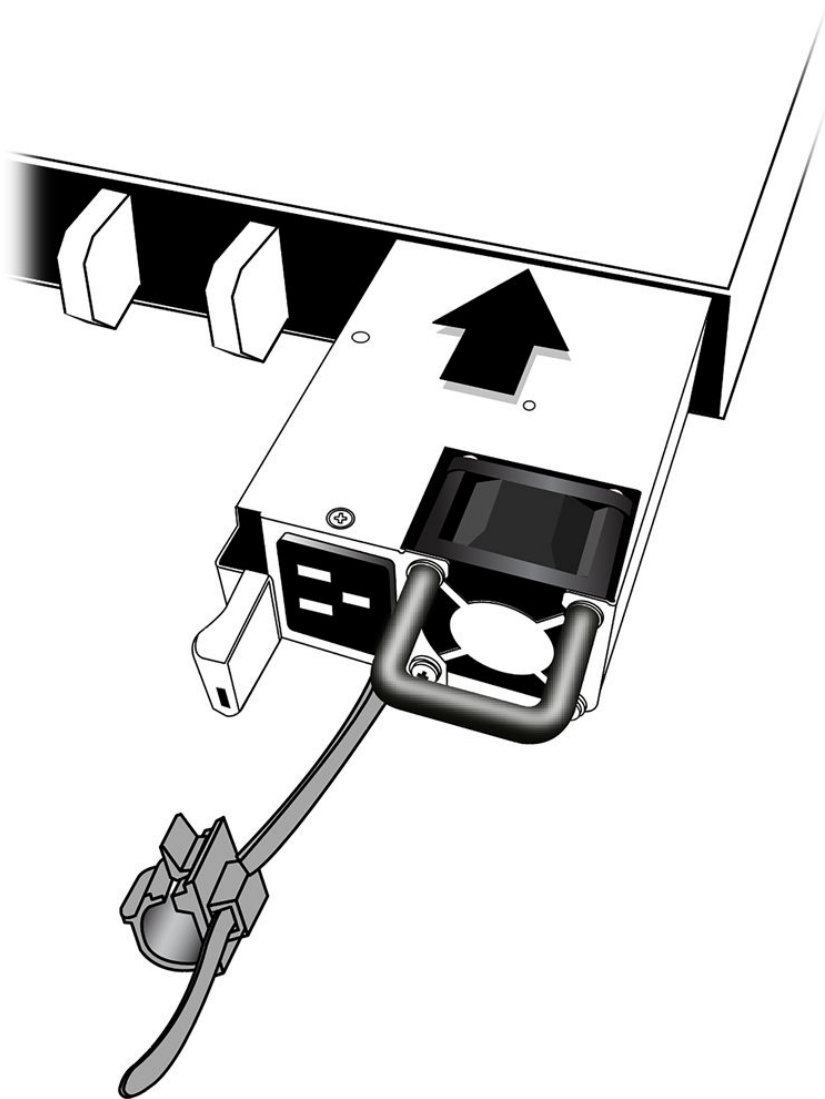

Figure 22: Installing a 750 W AC Power Supply

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

Do not slam the power supply into the switch.

> 📝 **Note**
> If power supplies are not installed in both power supply bays, be sure to install a cover over the unoccupied bay. Unoccupied bays must always be covered to maintain proper system ventilation and EMI levels.

6. Connect the AC power cord.

   a. If necessary, slide the plastic cord retainer farther away from the back of the switch.

   b. Connect the AC power cord to the input connector.

   c. Open the clip and slip it over the barrel of the connector.

      Figure 23 shows the power supply with the power cord and retainer in place.
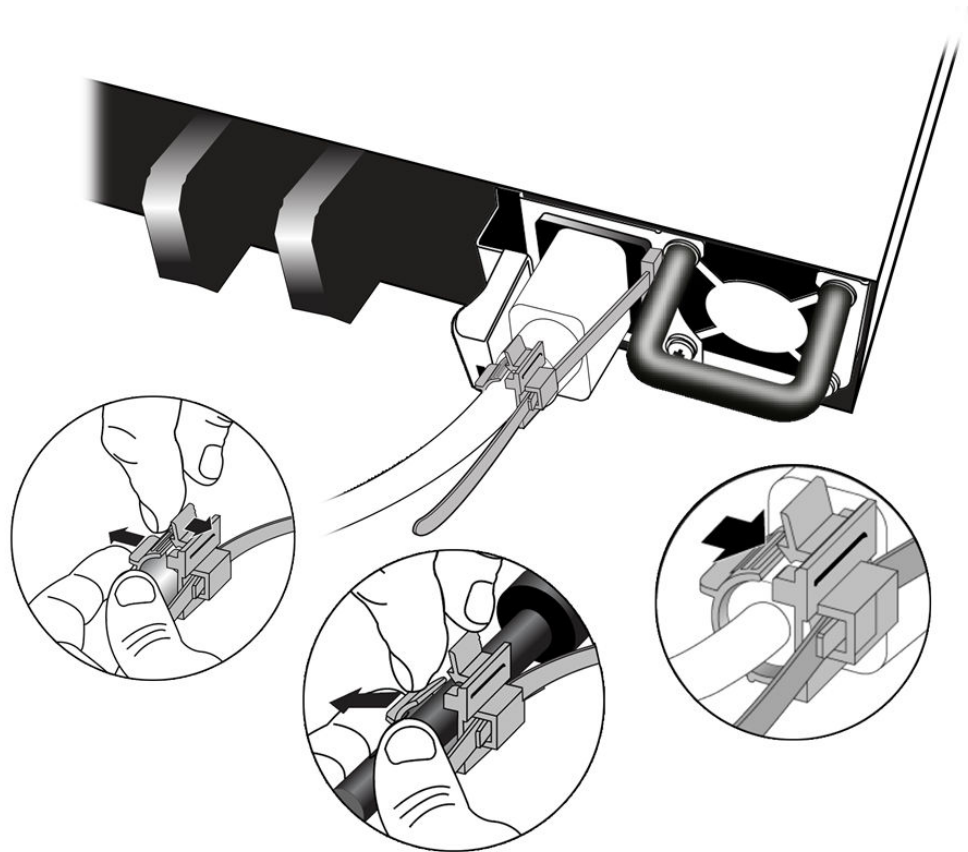
Figure 23: Power Supply with Power Cord and Retainer Attached

   d. Snap the clip firmly around the connector.

7. Connect the other end of the power cord to an 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.

To install a second power supply, repeat this procedure.

When you are finished, follow the steps in Turn on the Switch on page 56.

Installing a 750 W Internal DC Power Supply

⚠️ **Caution**
Make sure that the DC power supply circuit is not overloaded. Use proper overcurrent protection, such as a circuit breaker, to prevent overcurrent conditions. You may use up to a 30-Amp breaker.

To install a 750 W DC power supply in a switch, perform the following tasks in the order listed:

1. Make sure you have the tools and materials you need.
   See Required Tools and Materials for Installing a 750 W DC Power Supply on page 52.
2. Prepare the power cables and ground cable by stripping off the insulation.
   See Preparing the Cables for a 750 W DC Power Supply on page 52.
3. Ground the switch chassis.
   See Grounding the Switch Chassis on page 53.
4. Insert the power supply into the switch.
   See Installing a 750 W Internal DC Power Supply on page 52.
5. Connect the ground wire.
   See Connecting the Ground Wire to a 750 W DC Power Supply on page 54.
6. Connect the power supply to the DC source voltage.
   See Connecting a 750 W DC Power Supply to the Source Voltage on page 55.
7. Energize the DC circuit.

Required Tools and Materials for Installing a 750 W DC Power Supply

You need the following tools and materials to install or remove a 750 W DC power supply in a VSP 7400 Series switch.

- #14 AWG copper cable for grounding the power supply and connecting the power supply to the DC power source. (DC power cables and grounding cables are not included with the power supply.) Recommended insulation colors are:
  ◦ Red for the –48 V connection (–)
  ◦ Black for the –48 V RTN connection (+)
  ◦ Green or green with yellow stripe for the ground connection
- Connection hardware appropriate to the installation site:
  ◦ Hardware for connecting the power wires to the DC source
  ◦ Hardware for connecting the ground wire to the site grounding point
- Stripping tool
- Cross-head (Phillips) torque screwdriver
- #1 cross-head (Phillips) screwdriver
- ESD-preventive wrist strap
- Thermal protective gloves (for removal of a warm power supply)

Preparing the Cables for a 750 W DC Power Supply

You will need three cable wires for each installed DC power supply: two input cables and a grounding cable. We recommend that each cable have differently colored

insulation, as described in Required Tools and Materials for Installing a 750 W DC Power Supply on page 52.

To prepare the cable wires, follow these steps:

1. On each cable wire, strip 6 mm (0.25 inch) of insulation from one end.
2. Repeat step 1 for the other two cable wires.

Grounding the Switch Chassis

Before installing DC power supply units in your switch, perform these steps:

1. Verify that the DC circuit is de-energized.
2. Identify the grounding lug on the rear of the switch.

   The grounding lug is identified by the international symbol for earth ground: ⏚
3. Attach the ground wire to the grounding lug as follows.

   Use stranded copper wire, sized between 14 AWG and 6 AWG.

   a. At one end of the ground wire, strip the insulation to expose 12 mm (1/2 in) of bare wire.
   b. Insert the stripped wire into the grounding lug.
   c. Using a straight-tip torque screwdriver, tighten the retaining screw to 2.25 N m (20 in-lb).
4. Connect the other end of the wire to a known reliable earth ground point at your site.

You can now install one or two DC power supplies, following the steps in Installing a 750 W DC Power Supply on page 53.

Installing a 750 W DC Power Supply

Before installing a 750 W DC power supply (part no. XN-DCPWR-750W-F or XN-DCPWR-750W-R):

• Verify that the switch chassis has been grounded. (See Grounding the Switch Chassis on page 53.)
• Verify that the airflow direction for the power supply is the same as the airflow direction of the installed fan modules in the switch.

To install the power supply, follow these steps:

⚠️ **Caution**
The handle on the power supply is not designed to be used to lift or carry the power supply or the switch to which it is attached.

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 rear of the switch.
3. Verify that the power supply is right side up.
4. Carefully slide the power supply all the way into the power supply bay.

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

⚠️ **Caution**
Do not slam the power supply into the switch.

6. To install a second power supply, repeat the procedure.

When you are finished, connect the ground wire to each power supply. See Connecting the Ground Wire to a 750 W DC Power Supply on page 54.

Connecting the Ground Wire to a 750 W DC Power Supply

Follow these steps to connect the ground wire to a 750 W DC power supply.

🔺 **Warning**
Be sure to connect the chassis ground wire before you connect any power cables.

🔺 **Warning**
Be sure to disconnect the ground wire after you disconnect all power cables.

1. Verify that the DC circuit is de-energized.
2. Attach an ESD-preventive wrist strap to your bare wrist and connect the metal end to an appropriate ground point on the rack.
3. Connect the ground wire to the grounding point on the power supply.

   The grounding point is the middle of the three slots. Directly beneath it, you will see the international symbol for earth ground – ⏚ – on the body of the switch.
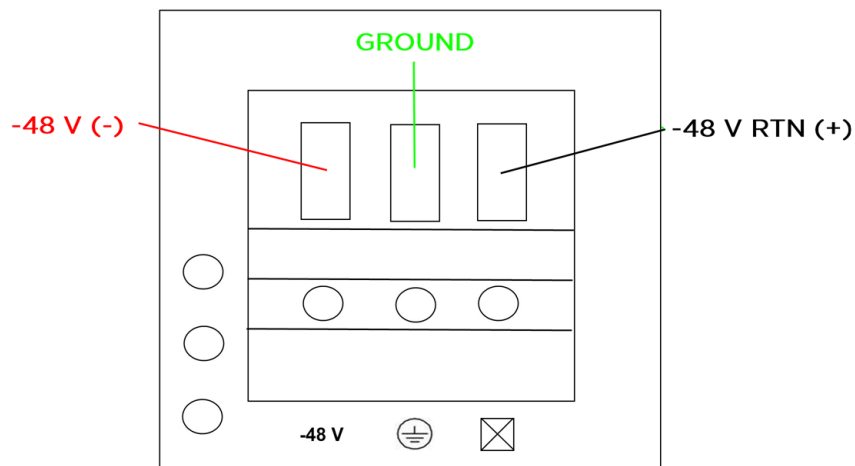
   Refer to Figure 24 for the slot location.

Figure 24: Slots for Connecting Wires to the 750 W DC Power Supply

   a. Insert the stripped end of the ground wire all the way into the slot.
   b. Insert a #1 Phillips screwdriver into the hole below the slot, and tighten.

c. Gently tug the ground wire to make sure it is fastened securely.

4. Connect the other end of the wire to a known reliable earth ground point at your site.

When you have connected the ground wire, connect the power supply to the power source using the two input cables. Follow the instructions in Connecting a 750 W DC Power Supply to the Source Voltage on page 55.

Connecting a 750 W DC Power Supply to the Source Voltage

Two 750 W DC power supplies are available: model XN-DCPWR-750W-F (front-to-back airflow) and model XN-DCPWR-750W-R (back-to-front airflow). Both can connect to a –48 V power source.

The DC power connection at your facility must be made by a qualified electrician, following these instructions.

⚠️ **Warning**
Always make sure that the DC circuit is de-energized before connecting or disconnecting the DC power cables on the DC power supply.

⚠️ **Caution**
Provide proper connection and strain relief on the DC power cables in accordance with all local and national electrical codes.

1. Verify that the DC circuit is de-energized.
2. Attach an ESD-preventive wrist strap to your bare wrist and connect the metal end to an appropriate ground point on the rack.
3. Connect the **negative** wire (–48 V) to the power supply as follows:

   a. Insert the stripped end of the wire all the way into the leftmost of the three slots on the terminal block.

   Refer to Figure 25 for slot locations.

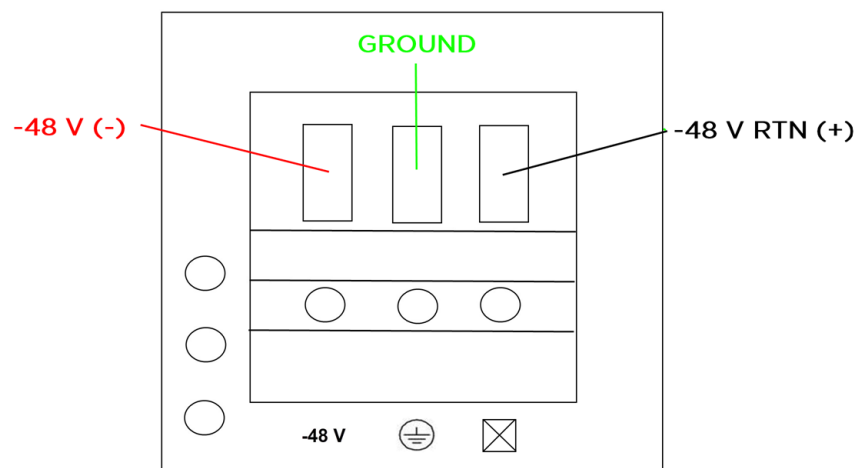**Figure 25: Slots for Connecting Wires to the 750 W DC Power Supply**

     b. Insert a #1 Phillips screwdriver into the hole below the slot, and tighten.

     c. Gently tug the wire to make sure it is fastened securely.

4. Connect the **positive** wire (–48 V) as follows:

     a. Insert the stripped end of the wire all the way into the rightmost of the three slots on the terminal block.

     b. Insert a #1 Phillips screwdriver into the hole below the slot, and tighten.

     c. Gently tug the wire to make sure it is fastened securely.

5. Connect the cables to the DC source voltage, using hardware appropriate to the installation site and following local and national electrical codes.

Power up to the switch, following the steps in Turn on the Switch on page 56.

Leave the ESD strap permanently connected to the rack, so that the strap is always available when you need to handle ESD-sensitive components.

Turn on the Switch

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 81.

To turn on an Extreme Networks switch, do the following.

1. For switches that are connected to AC power, connect the power cord to the AC power input socket on the switch (or power supply) and to an AC power outlet.

2. For switches that are connected to DC power, do the following:

     a. Verify that the DC circuit is de-energized.

     b. Verify that the ground wire is connected to the grounding lug on the rear of the switch.

     The grounding lug is identified by the international symbol for earth ground:

     c. Verify that the DC power input cables are properly connected to the DC power supplies at the rear of the switch.

     d. Energize the circuit.

3. When power is connected, verify that the PSU LED turns green.

When the PSU LED has turned green, follow the instructions in Connect Network Interface Cables on page 57.

If the PSU and RPS LEDs do not turn green, refer to the *LEDs* topic for your switch model (in Monitoring the Switch on page 66) for troubleshooting information.

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.

Activating and Verifying the Switch

After you have installed the switch and connected network cables, perform the following tasks to configure the software on the switch and prepare it for use.

Check https://www.extremenetworks.com/support/compatibility-matrices/extremecloud-hardware-support/ 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 https://documentation.extremenetworks.com/extremecloud/quick_reference.

Otherwise, follow the instructions in these topics:

- Connect the Switch to a Management Console on page 58
- Configure the Switch for Use on page 58

Connect the Switch 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

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 the Switch to a Management Console on page 58.

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

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 authentical 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.

To configure security, see *Configuring Security*.

To configure other switch features, see *Documentation Reference*.

Removing and Replacing Components

You can replace internal power supplies and fan modules, as needed, while the switch is operating ("hot swapping").

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

Follow the procedures in this section to remove and replace power supplies and fan modules, and to remove a switch from a rack.

Replacing Internal Power Supplies

You can replace internal power supplies as needed while the switch is operating ("hot swapping").

All installed power supplies must have the same airflow direction (front-to-back or back-to-front) and must also match the airflow direction of the fan modules.

To replace one or both AC internal power supplies in a VSP 7400 Series switch, follow the steps in Installing a 750 W Internal AC Power Supply on page 49.

To replace one or both DC internal power supplies in a VSP 7400 Series switch, follow the steps in Installing a 750 W Internal DC Power Supply on page 52.

Replace Fan Modules

You can replace fan modules as needed while the switch is operating ("hot swapping").

All installed fan modules must blow air in the same direction and must match the airflow direction of the installed power supplies.

- If the switch's fan tray has a **red** tab, the airflow is front-to-back. Use a fan module labeled **Air Out**.
- If the switch's fan tray has a **blue** tab, the airflow is back-to-front. Use a fan module labeled **Air In**.

> **Note**
>
> The operating-system software cannot display the airflow direction.

There are sensors inside the chassis that monitor the temperature. These sensors send information to a controller that automatically regulates the fan speed to maintain the proper temperature.

- If any sensor exceeds its threshold, an alarm is triggered and the log is generated in the format:

```
Temperature Sensor [sensor] is ([sensortemp] C) has exceeded the alarm
threshold temperature ([thresholdtemp] C)
```

where *sensor* is one of the temperature sensors, *sensortemp* is the temperature reading of one of the sensors, and *thresholdtemp* is the threshold temperature.

- When the temperature cools by 2° below the threshold, the alarm clears and the log is generated in the format:

```
Temperature Sensor [sensor] overheat temperature alarm cleared
```

There are ten sensors in VSP 7400-48Y-8C. The following table shows the types of sensors, temperatures, and the corresponding threshold values:

Sensor Name	Temperature (C)	Warning Threshold	Critical Threshold
INTERNAL MAC	41	100	103
SODIMM	15	80	85
CPU	27	65	70
MAC	28	65	70
PHY1	29	65	70
PHY2	25	65	70
PRESS_FIT_CONNECTOR	29	65	70
MGMT_BRD	25	65	70
MB	24	65	70
CPU CORE	37	100	110

There are ten sensors in VSP 7400-32C. The following table shows the types of sensors, temperatures, and the corresponding threshold values:

Sensor Name	Temperature (C)	Warning Threshold	Critical Threshold
CPU	24	70	75
MAC	39	80	85
PHY1	26	70	75
PHY2	34	70	75
PRESS_FIT_CONNECTOR	24	70	75
MGMT_BRD	27	65	70
MB	25	70	75

Sensor Name	Temperature (C)	Warning Threshold	Critical Threshold
CPU CORE	29	100	110
INTERNAL MAC	44	100	103
SODIMM	15	80	85

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.

To replace the fan module in a switch, do the following.

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

   The fan module is held in place by spring clips. As you pull, the clips will disenagage and the fan will stop.
2. Slide the fan module out of the switch and set it aside.
3. Verify that the airflow direction on the replacement fan module matches that of the installed fan modules.

   Fans with front-to-back airflow have red tabs and are labeled **Air Out**.

   Fans with back-to-front airflow have blue tabs and are labeled **Air In**.
4. Carefully slide the replacement fan module into the switch.

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

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 Installing Your Switch on page 35.

1. Disconnect the switch from its power source or sources.
2. Remove all cables and transceivers.

3. To remove a switch from a four-post rack, do the following:

   a. Release the tabs on both slider assemblies, and slide the switch away from the rear of the rack.
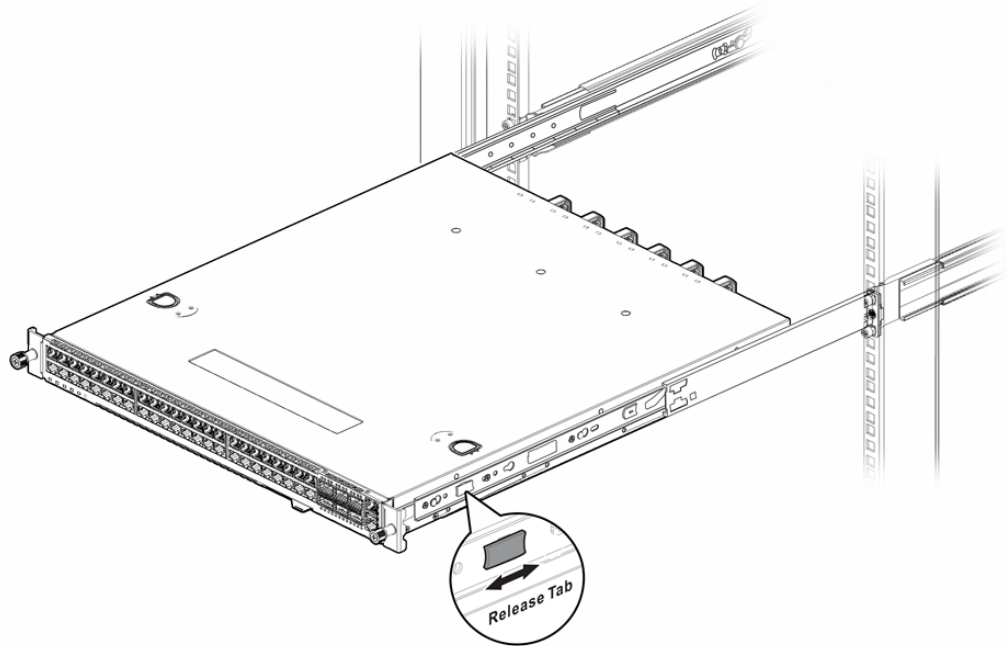
      See Figure 26.

Figure 26: Removing the Switch from the Slider Assemblies

   b. Disengage the retainers that are connecting the mounting brackets with the sliding rails on both sides.

   c. Carefully slide the switch out of the slider assembly and place it on a flat surface.

      You can leave the slider assemblies in place. If you want to remove them, continue with step 3.d.

d. On one of the slider assemblies, push the rear clamp until it separates from the rear rack post.
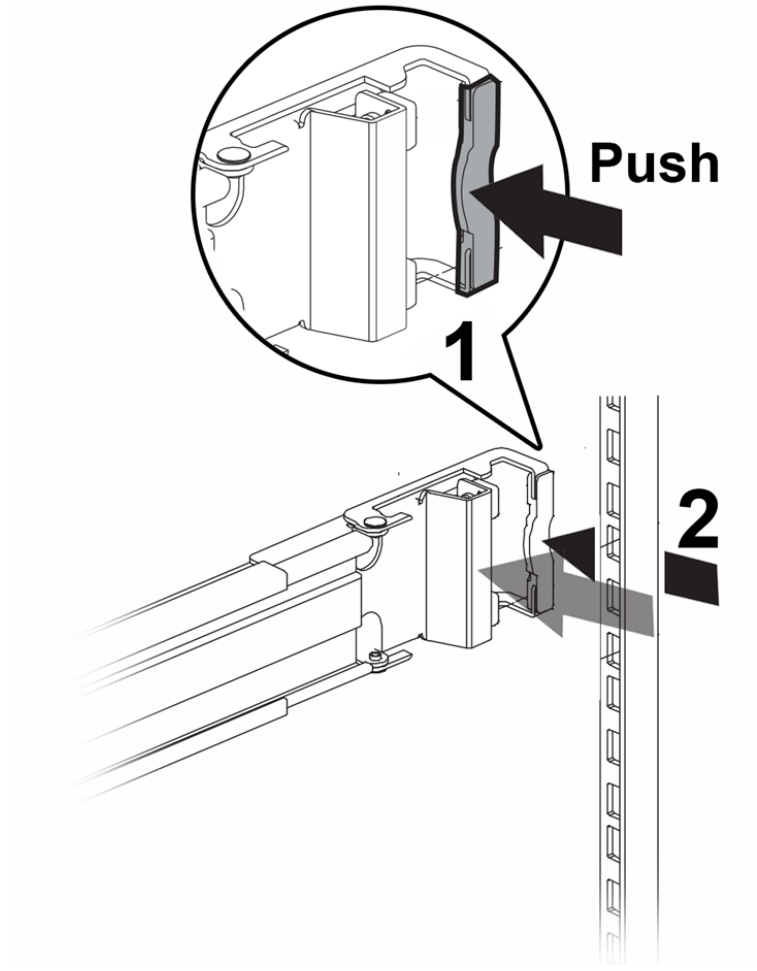
See Figure 27.

Figure 27: Removing the Slider Assembly: Rear Rack Post

e. Release the tab that holds the front of the slider assembly to the front rack post, and pull the pegs out.
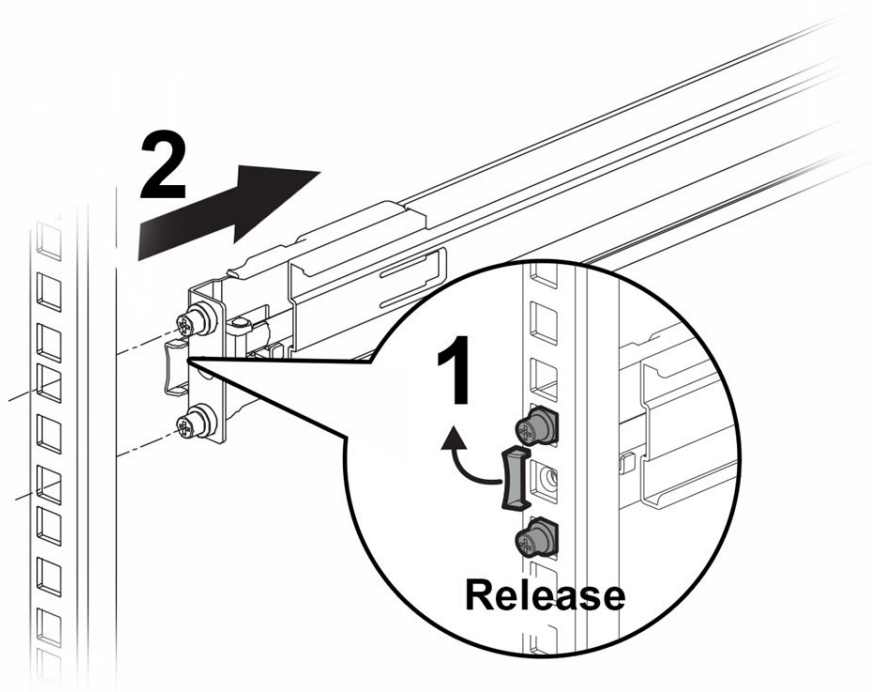
   See Figure 28.

Figure 28: Removing the Slider Assembly: Front Rack Post

f. Repeat steps 3.d on page 64 and 3.e to remove the second slider assembly.

4. To remove a switch from a two-post rack, do the following:

   a. Carefully supporting the weight of the switch, unscrew the mounting brackets from the rack.

   b. Tilt the switch so that the brackets are clear of the rack posts, and carefully lift it out of the rack.

      If the switch cannot be tilted (because other equipment is mounted directly above and below), remove one or two mounting brackets from the switch and then slide the switch out.

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

Monitoring the Switch

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

VSP 7400 Series Switch LEDs

The following tables describe the meanings of the LEDs on the front panel of the VSP 7400 Series switch:

- VSP 7432CQ LEDs for Data Ports (1-32) on page 66
- Table 10 on page 67
- Table 11 on page 67
- VSP 7400 Series Front Panel System LEDs on page 67
- Table 13 on page 68

VSP 7432CQ LEDs for Data Ports (1-32)

Table 9: LEDs for Data Ports (1-32)

Port Configuration	Color/State	Meaning
100 Gb or 4x25 Gb	Steady green	Port OK
	Blinking green	Port transmitting or receiving
	Slow blinking green	Port disabled by software
	Off	No link/Fault
40 Gb or 4x10 Gb	Steady green	Port OK
	Blinking green	Port transmitting or receiving
	Slow blinking green	Port disabled by software
	Off	No link/Fault

VSP 7400-48Y LEDs for Data Ports (1-54)

Note
Data Ports 55 and 56 are reserved.

Table 10: LEDs for Data Ports (1-48)

Port Configuration	Color/State	Meaning
10/25 Gb	Steady green	Port OK
	Blinking green	Port transmitting or receiving
	Slow blinking green	Port disabled by software
	Off	No link/Fault

Table 11: LEDs for Data Ports (49-54)

Port Configuration	Color/State	Meaning
100 Gb or 4x25 Gb	Steady green	Port OK
	Blinking green	Port transmitting or receiving
	Slow blinking green	Port disabled by software
	Off	No link/Fault
40 Gb or 4x10 Gb	Steady green	Port OK
	Blinking green	Port transmitting or receiving
	Slow blinking green	Port disabled by software
	Off	No link/Fault

VSP 7400 Series Front Panel System LEDs

Table 12: VSP 7432CQ Front Panel System LEDs

Label or Type	Color/State	Meaning
PSU1,PSU2 (Power Supplies)	Steady green	PSU is installed and providing power
	Steady amber	PSU is installed but input power is disconnected or unit fault detected
	Off	PSU is not installed
FAN	Steady green	All fans operating normally
	Steady amber	A fan has been removed or fault detected
	Off	No power to fan modules

Table 12: VSP 7432CQ Front Panel System LEDs (continued)

Label or Type	Color/State	Meaning
SYS (System)	Steady green	Normal operation; agent software code has been loaded
	Blinking green	Loading the agent software code
	Steady amber	Error encountered while running diagnostic software
	Blinking amber	Loading and executing the boot loader or diagnostic software
	Off	Unit not operational
PWR (Power)	Steady green	Normal operation
	Blinking green	System in reset
	Off	Unit not operational

Table 13: VSP 7400-48Y Front Panel System LEDs

Label or Type	Color/State	Meaning
PSU1,PSU2 (Power Supplies)	Steady green	PSU is installed and providing power
	Steady amber	PSU is installed but input power is disconnected or unit fault detected
	Off	PSU is not installed
FAN	Steady green	All fans operating normally
	Steady amber	A fan has been removed or fault detected
	Off	No power to fan modules
SYS (System)	Steady green	Normal operation; agent software code has been loaded
	Blinking green	Loading the agent software code
	Steady amber	Error encountered while running diagnostic software
	Blinking amber	Loading and executing the boot loader or diagnostic software
	Off	Unit not operational
PWR (Power)	Steady green	Normal operation
	Blinking green	System in reset
	Off	Unit not operational

Table 14: VSP 7400-48Y Front Panel 100/1G RJ45 Port LEDs

Label or Type	Color/State	Meaning
	Steady green	Network link

Table 14: VSP 7400-48Y Front Panel 100/1G RJ45 Port LEDs (continued)

Label or Type	Color/State	Meaning
OOB Management Port (Link/Activity)	Blinking green	Network link and activity
	Off	Link at 10Mbps or no activity
OOB Management Port (Speed)	Blinking green	Port link at 100Mbps
	Steady green	Port link at 1000Mbps
	Off	Link at 10Mbps or no link

750 W AC Power Supply LEDs

The following tables describe the meanings of the LEDs on the 750 W AC power supply (part number XN-ACPWR-750W-F or XN-ACPWR-750W-R).

The LEDs are located on the end of the power supply unit, arranged vertically to the left of the power cord receptacle.

Table 15: 750 W AC Power Supply LED Status Indications

Label and Color	Description	State	Meaning
! Amber	Fault Indicator	On (Solid)	PSU fault
		Off	No PSU fault
DC (Green)	DC output Good	On (solid)	DC output OK
		Off or Blinking	DC output fail
AC (Green)	AC input Good	On	AC input OK
		Off	AC input fail

750 W DC Power Supply LEDs

The following tables describe the meanings of the LEDs on the 750 W DC power supply (part number XN-DCPWR-750W-F or XN-DCPWR-750W-R).

The LEDs are located on the end of the power supply unit, arranged vertically to the left of the terminal block.

Table 16: 750 W DC Power Supply LED Status Indications

Label and Color	Description	State	Meaning
! Amber	Fault Indicator	On (Solid)	PSU fault
		Off	No PSU fault
OUT OK (Green)	DC output Good	On (solid)	DC output OK
		Off or Blinking	DC output fail
IN OK (Green)	DC input Good "IN OK"	On	DC input OK
		Off	DC input fail

Technical Specifications

This section lists technical specifications for the hardware products described in this document.

VSP 7400 Series Switches Technical Specifications

The ExtremeSwitching VSP 7400 Series includes the following switches:

- VSP 7432CQ (base model)
- VSP 7432CQ-F (includes two AC power supplies; front-to-back airflow)
- VSP 7432CQ-R (includes two AC power supplies; back-to-front airflow)
- VSP 7400-48Y (base model)
- VSP 7400-48Y-F (includes two power supplies; front-to-back airflow)
- VSP 7400-48Y-R (includes two power supplies: back-to-front airflow)

Specifications for supported power supplies, including dimensions and weights, are found in 750 W Power Supplies Technical Specifications on page 79.

Table 17: VSP 7400 Unpackaged Dimensions

VSP 7432CQ switch	Height: 4.34 cm (1.71 in) Width: 43.96 cm (17.31 in) Length: 53.95 cm (21.24 in)
VSP 7400-48Y switch	Height: 4.34 cm (1.71 in) Width: 43.96 cm (17.31 in) Length: 53.95 cm (21.24 in)
Fan unit, front-to-back or back-to-front	Height: 4.0 cm (1.57 in) Width: 4.0 cm (1.57 in) Length: 13.4 cm (5.28 in)

Table 17: VSP 7400 Unpackaged Dimensions (continued)

Four-post rack mount kit (included with switch)	Height: 2.1 cm (0.83 in) Width: 4.4 cm (17.3 in) Length: 63.0 cm - 90.0 cm (24.80 in - 35.43 in)
Two-post rack mount kit (separately orderable)	Height: 4.2 cm (1.65 in) Width: 2.4 cm (0.93 in) Length: 12.5 cm (4.92 in)

Table 18: VSP 7400 Unpackaged Weight

VSP 7432CQ switch with no PSUs (base model)	7.39 kg (16.29 lb)
VSP 7432CQ switch with two AC PSUs (-F and -R models)	9.04 kg (19.93 lb)
VSP 7400-48Y switch with no PSUs	7.39 kg (16.29 lb)
VSP 7400-48Y switch with two AC PSUs (-F and -R models)	9.04 kg (19.93 lb)
Fan unit, front-to-back or back-to-front	0.14 kg (0.31 lb)
Four-post rack mount kit (included with switch)	2.65 kg (5.84 lb)
Two-post rack mount kit (separately orderable)	0.45 kg (0.99 lb)

Table 19: VSP 7400 Packaged Dimensions

VSP 7432CQ switch	Height: 18.5 cm (7.28 in) Width: 60.0 cm (23.62 in) Length: 88.0 cm (34.65 in)
VSP 7400-48Y switch	Height: 18.5 cm (7.28 in) Width: 60.0 cm (23.62 in) Length: 88.0 cm (34.65 in)
Fan unit, front-to-back or back-to-front	Height: 24.0 cm (9.45 in) Width: 20.6 cm (8.11 in) Length: 22.1 cm (8.70 in)
Four-post rack mount kit (included with switch)	Height: 7.0 cm (2.76 in) Width: 11.0 cm (4.33 in) Length: 84.0 cm (33.07 in)
Two-post rack mount kit (separately orderable)	Height: 24.0 cm (9.45 in) Width: 20.6 cm (8.11 in) Length: 22.1 cm (8.70 in)

Table 20: VSP 7400 Packaged Weight

VSP 7432CQ switch with no PSUs (base model)	14.59 kg (32.17 lb)
VSP 7432CQ switch with two AC PSUs (-F and -R models)	16.24 kg (35.80 lb)
VSP 7400-48Y switch with no PSUs	14.59 kg (32.17 lb)

Table 20: VSP 7400 Packaged Weight (continued)

VSP 7400-48Y switch with two AC PSUs (-F and -R models)	16.24 kg (35.80 lb)
Fan unit, front-to-back or back-to-front	1.82 kg (4.01 lb)
Four-post rack mount kit (included with switch)	2.71 kg (5.97 lb)
Two-post rack mount kit (separately orderable)	3.20 kg (7.05 lb)

Fan and Acoustic Noise

Table 21: Fan and Acoustic Noise

Switch Model	Bystander Sound Pressure (at 25°C)	Declared Sound Power (at 25°C)
VSP7400-32C-AC-F (FB airflow)	45 db(A)	6.5 bels
VSP7400-32C-AC-R (BF airflow)	47 db(A)	6.7 bels
VSP7400-48Y-8C-F (FB airflow)	52.2 db(A)	6.8 bels
VSP7400-48Y-8C-R (BF airflow)	50.5 db(A)	6.7 bels

Fan Tray and Speed Variation

Fan speeds are adjusted based on calculations of the temperatures on all sensors. Due to one fan being located behind the other, air pushed from one fan may cause the other fan in the module to run at a higher speed. One fan can run at medium speed while the other can spin at high speed if one is close to the temperature boundary.

Table 22: Fan Tray Speed Variation

Description	Operation Status	Operation Speed	Airflow Direction
Tray 1 Fan 1	up	high speed	Unknown*
Tray 1 Fan 2	up	medium speed	Unknown*
Tray 2 Fan 1	up	high speed	Unknown*
Tray 2 Fan 2	up	medium speed	Unknown*
Tray 3 Fan 1	up	high speed	Unknown*
Tray 3 Fan 2	up	medium speed	Unknown*
Tray 4 Fan 1	up	high speed	Unknown*
Tray 4 Fan 2	up	medium speed	Unknown*
Tray 5 Fan 1	up	high speed	Unknown*

Table 22: Fan Tray Speed Variation (continued)

Description	Operation Status	Operation Speed	Airflow Direction
Tray 5 Fan 2	up	medium speed	Unknown*
Tray 6 Fan 1	up	high speed	Unknown*
Tray 6 Fan 2	up	medium speed	Unknown*

* - The color of the tab on the fan tray indicates the airflow direction:

• Red = Front-to-Back

• Blue = Back-to-Front

Power Options

Table 23: VSP 7400 Power Options

VSP 7432CQ	**750 W AC power supply:** Part # XN-ACPWR-750W-F (front-to-back) Part # XN-ACPWR-750W-R (back-to-front) AC Input: 100-120/200-240 VAC, 50/60 Hz 3.5/1.8 A max. for each PSU PSU Input Socket: IEC 320 C14 Power cord input plug: IEC 320 C13
	750 W DC power supply: Part # XN-DCPWR-750W-F (front-to-back) Part # XN-DCPWR-750W-R (back-to-front) DC Input: -48 to -60 VDC, 7.5 A max. for each PSU
VSP 7400-48Y	**750 W AC power supply:** Part # XN-ACPWR-750W-F (front-to-back) Part # XN-ACPWR-750W-R (back-to-front) AC Input: 100-120/200-240 VAC, 50/60 Hz 3.5/1.8 A max. for each PSU PSU Input Socket: IEC 320 C14 Power cord input plug: IEC 320 C13
	750 W DC power supply: Part # XN-DCPWR-750W-F (front-to-back) Part # XN-DCPWR-750W-R (back-to-front) DC Input: -48 to -60 VDC, 7.5 A max. for each PSU

Power Consumption

Table 24: VSP 7432CQ Power Consumption

Operating Mode	Test Conditions				Power Consumption		
	Fan Duty	Traffic Load	Port Status	Packet Length (Bytes)	Dual Power: PSU1	Dual Power: PSU2	Single Power: PSU1
Empty mode	85%	NA	Down	NA	152.6 W	145.5 W	285.9 W
Standby mode	85%	NA	Up	NA	157.6 W	151.5 W	297.2 W
Typical mode	85%	70%	Up	1,518	165.0 W	159.8 W	313.6 W
Stress mode	100%	100%	Up	256	207.8 W	204.5 W	406.0 W

Table 25: VSP 7400-48Y Power Consumption

Operating Mode	Test Conditions				Power Consumption		
	Fan Duty	Traffic Load	Port Status	Packet Length (Bytes)	Dual Power: PSU1	Dual Power: PSU2	Single Power: PSU1
Empty mode	85%	NA	Down	NA	92 W	87 W	170 W
Standby mode	85%	NA	Up	NA	97 W	91 W	178 W
Typical mode	85%	70%	Up	1,518	104 W	99 W	193 W
Stress mode	100%	100%	Up	256	199.8 W	186.2 W	387 W

Mean Time Between Failures (MTBF)

Table 26: VSP 7400 MTBF

Switch	Mean Time Between Failures
VSP7400-32C-8C-AC-F	384936 hrs @ 25°C
VSP7400-32C-8C-AC-R	444822 hrs @ 25°C
VSP7400-48Y-8C-AC-F	389719 hrs @ 25°C
VSP7400-48Y-8C-AC-R	450269 hrs @ 25°C

CPU, Memory

Table 27: CPU, Memory

1GHz 64-bit CPU
16 Gb memory, 128 Gb SSD

Table 27: CPU, Memory (continued)

4GB eMMC Flash Memory
32 MB buffer, per chip

Standards

Table 28: Safety Standards

North American Safety of ITE	UL 62368-1 2nd Ed., 2014-12-01, Listed Device (US) UL 60950-1 2nd Ed., 2014-10-14, Listed Device (US) CAN/CSA 22.2 #62368-1-14 2nd Ed., Canada CAN/CSA 22.2 #60950-1-07 2nd Ed., Canada 2014-10 Complies with FCC 21 CFR Chapter 1, Sub-chapter J in accordance with FDA & CDRH requirements (US Laser Safety) CDRH Letter of Approval (US FDA Approval)
European Safety of ITE	EN 62368-1:2014/A11:2017 EN 60950-1:2006 + A11:2009 + A12:2010 + A2:2013 2014/35/EU Low Voltage Directive
International Safety of ITE	CNS 14336-1 AS/NZX 60950-1 (Australia /New Zealand) GB4943.1-2001 IEC/EN 60825-1:2007, IEC/EN 60825-2:2004+A1+A2 or later (Lasers Safety) IEC 62368-1:2014 (2ndEd.) IEC 60950-1:2005 (2nd Ed.) + Am 1:2009 + Am 2:2013 + National Difference

Table 29: EMI/EMC Standards

North America EMC for ITE	FCC 47 CFR part 15 subpart B Class A (USA) ICES-003 (Canada)
European EMC standards	EN 300 386 V2.1.1(2016-07) Class A EN 55032:2015/AC:2016-07 Class A EN 55024:2010/A1:2015 EN 55011:2009+A1:2010 (Group 1, Class A) EN 61000-6-2:2005+AC:2005 EN 61000-6-4:2007+A1:2011 EN 61000-3-2:2014 Class A EN 61000-3-3:2013 EN 61000-4-2:2009 EN 61000-4-3:2006+A1:2008+A2:2010 EN 61000-4-4:2012 EN 61000-4-5:2014 EN 61000-4-6:2014/AC:2015 EN 61000-4-8:2010 EN 61000-4-11:2004/A1:2017

Table 29: EMI/EMC Standards (continued)

International EMC certifications	IEC 61000-6-2:2016 ED 3.0 IEC 61000-6-4:2018 ED 3.0 IEC 61000-4-2:2008 ED 2.0 IEC 61000-4-3:2006+AMD1:2007+AMD2:2010 ED 3.2 IEC 61000-4-4:2012 ED 3.0 IEC 61000-4-5:2014+AMD1:2017+ ED 3.1 IEC 61000-4-6:2013+ ED 4.0 IEC 61000-4-8:2009+ ED 2.0 IEC 61000-4-11:2004+AMD1:2017+ ED 2.1 CISPER 32:2015 ED 2.0 Class A CISPER 24:2010+AMD1:2015 Class A CISPER 11:2009 ED 5.0 Group 1, Class A AS/NZS CISPER 32:2015 Class A GB/T9254-2008 Class A ANSI C63.4:2014
Country-specific	RCM (Australia) VCCI Class A (Japan) MSIP KCC (Korea) BSMI (Taiwan) ANATEL (Brazil) CCC mark (China) SABS & NRCS (South Africa) UL, FCC (North America) EAC mark (Custom Union)

Table 30: Telecom Standards

EN/ETSI 300 386:2008 (EMC Telecommunications) EN/ETSI 300 019 (Environmental for Telecommunications) MEF9 and MEF14 certified for EPL, EVPL, and ELAN

Table 31: IEEE 802.3 Media Access Standards

IEEE 802.3ab 1000BASE-T IEEE 802.3z 1000BASE-X IEEE 802.3ae 10GBASE-X IEEE 802.3ba 40GBASE-X

Environmental Data

Table 32: Environmental Data

Environmental standards	EN/ETSI 300 019-2-1 v2.1.2 (2000 - 2009) - Class 1.2 Storage EN/ETSI 300 019-2-2 v2.1.2 (1999 - 09) - Class 2.3 Transportation EN/ETSI 300 019-2-3 v2.1.2 (2003 - 04) - Class 3.1e Operational EN/ETSI 300 753 (1997-10) - Acoustic Noise ASTM D3580 Random Vibration Unpackaged 1.5G
Temperature range	• Front-to-back airflow: 0°C to 50°C (32°F to 122°F) up to 1800m (6000 ft) • Front-to-back airflow: 0°C to 45°C (32°F to 113°F) above 1800m (6000 ft) • Back-to-front airflow: 0°C to 45°C (32°F to 113°F) up to 1800m (6000 ft) • Back-to-front airflow: 0°C to 40°C (32°F to 104°F) above 1800m (6000 ft)
Other operating conditions	Humidity: 5% to 95% relative humidity, non-condensing Altitude: 0 to 3,000 meters (9,850 feet) Operational shock (half sine): 30 m/s^2 (3 G), 11 ms, 60 shocks Operational random vibration: 3 to 500 Hz at 1.5 G rms
Storage & transportation conditions (packaged)	Transportation temperature: -40°C to 70°C (-40°F to 158°F) Humidity: 5% to 95% relative humidity, non-condensing Packaged shock (half sine): 180 m/s^2 (18 G), 6 ms, 600 shocks Packaged sine vibration: 5 to 62 Hz at velocity 5 mm/s, 62 to 500 Hz at 0.2 G Packaged random vibration: 5 to 20 Hz at 1.0 ASD w/–3 dB/oct. from 20 to 200 Hz 14 drops minimum on sides and corners at 42 in (<15 kg box)

750 W Power Supplies Technical Specifications

Four 750 W power supply units are available for use with VSP 7400 Series switches:

- VSP/SLX 750W AC power supply - front-to-back airflow (part no. XN-ACPWR-750W-F)
- VSP/SLX 750W AC power supply - back-to-front airflow (part no. XN-ACPWR-750W-R)
- VSP/SLX 750W DC power supply - front-to-back airflow (part no. XN-DCPWR-750W-F)
- VSP/SLX 750W DC power supply - back-to-front airflow (part no. XN-DCPWR-750W-R)

Table 33: 750 W Power Supplies: Unpackaged Dimensions

750 W power supply – AC front-to-back or back-to-front airflow	Height: 4.00 cm (1.57 in) Width: 8.00 cm (3.15 in) Depth: 20.60 cm (8.11 in)
750 W power supply – DC front-to-back or back-to-front airflow	Height: 4.00 cm (1.57 in) Width: 8.00 cm (3.15 in) Depth: 20.60 cm (8.11 in)

Table 34: 750 W Power Supplies: Unpackaged Weight

750 W power supply – AC front-to-back or back-to-front airflow	0.81 kg (1.79 lb)
750 W power supply – DC front-to-back or back-to-front airflow	0.85 kg (1.86 lb)

Table 35: 750 W Power Supplies: Packaged Dimensions

750 W power supply – AC front-to-back or back-to-front airflow	Height: 44.5 cm (17.52 in) Width: 27.5 cm (10.83 in) Depth: 42.5 cm (16.73 in)
750 W power supply – DC front-to-back or back-to-front airflow	Height: 44.5 cm (17.52 in) Width: 27.5 cm (10.83 in) Depth: 42.5 cm (16.73 in)

Table 36: 750 W Power Supplies: Packaged Weight

750 W power supply – AC front-to-back or back-to-front airflow	10.22 kg (22.53 lb)
750 W power supply – DC front-to-back or back-to-front airflow	10.50 kg (23.15 lb)

Table 37: Power Specifications (AC Power Supplies)

Voltage input range	85 to 264 V $\sim$
Nominal input ratings	100-140/200-240V $\sim$, 10/5.36A max., 50/60Hz
Nominal input current at full loads	10 A at 90 V $\sim$ (low-line) 3.7 A at 230 V $\sim$ (high-line)
Line frequency range	47 to 63 Hz
Maximum inrush current	35 A
Output	+12 V, 61.5 A +12 Vsb, 3 A Total output power not to exceed 750W
Power supply input socket	IEC 320 C14

Table 37: Power Specifications (AC Power Supplies) (continued)

Power cord input plug	IEC 320 C13
Power cord wall plug	Refer to Power Cord Requirements for AC-Powered Switches and AC Power Supplies on page 81.
Power supply cord gauge	18 AWG (0.75 mm^2) up to 6 feet or 2 meters or 16 AWG (1.0 mm^2) over 6 feet
Efficiency	Low Line: 88% at 50% load and 86% at 100% load High Line: 90% at 50% and 100% loads

Table 38: Power Specifications (DC Power Supplies)

Nominal input	-48 to -60 VDC, 20.4 A
DC Voltage input range	-35 to -75 V
Inrush Current	21 A peak
Maximum wire size	14 AWG (1.5 mm2 copper stranded).
DC Output	+12.2VDC, 61.5A; +12Vaux, 2.5A
Power (W)	750 W

Table 39: Environmental Specifications (All Power Supply Units)

Operating temperature	0°C to 55°C (normal operation)
Storage temperature	-40°C to 70°C
Operating humidity	20% to 90% relative humidity, non-condensing
Operational shock	30 m/s^2 (3 G)

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 IEC320-C15 connector for connection to the switch or power supply.
- The power cord must have an appropriately rated and approved wall plug applicable to the country of installation.
- For cords up to 14.76 feet (4.5 m) long, the wire size must be 15 AWG (2 mm^2) minimum wire length up to 4.9 feet (1.5 m).

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

Safety and Regulatory Information

> **Warning**
> 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.

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 metallically 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 metallically to OSP wiring.

This warning does not apply to T1/E1 ports because T1/E1 ports have built-in isolation and surge protection that allows them to be connected to OSP wiring.

Installing Power Supply Units and Connecting Power

For the ratings and power input requirements of each power supply unit, see VSP 7400 Series Switches Technical Specifications on page 71 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 AC power supplies:

- For switches with field-replaceable power supplies, do not connect the power supply to an electrical source when the power supply is not installed in the switch; doing so would expose a hazardous energy and poses a potential shock and fire hazard.
- Plug power supplies only into properly grounded electrical outlets to help prevent electrical shock and to comply with international safety standards.

- Use only power cords that are certified for use within the country of use. Do not attempt to modify AC power cords.
- Make sure that the voltage and frequency of your power outlet match the system electrical ratings for the equipment. The building and/or power source must provide overload protection.
- Use a surge suppressor, line conditioner, or uninterruptible power supply to protect the system from momentary increases or decreases in electrical power.
- When multiple power supplies are used with a system, connect each power supply to a different, independent overcurrent protection device, such as a circuit breaker. If a single power source fails, it will affect only that power supply to which it is connected. See the data sheet of the power supply for proper sizing of the circuit breaker.
- Extreme Networks AC power supplies do not have switches for turning the unit on and off. Remove all wall plugs from the electrical outlets to disconnect the power. Make sure that these connections are easily accessible.

When you install DC power supplies or connect DC power:

- Making the connection to your facility DC source voltage must be performed by a qualified, licensed electrician.
- 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.
- Do not connect a DC power supply to the DC source power when the power supply is not installed in the chassis; doing so would expose a hazardous energy and poses a potential shock and fire hazard.
- 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.
- DC-powered equipment must be installed in a restricted-access area to ensure that only trained and qualified service personnel have access to the equipment. A restricted-access area can be entered only through the use of a special tool, lock and key, or other means of security.

> **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.

Selecting 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.

Regulatory Notices

Depending on where you are located, some or all of the following regulatory notices may apply to your Extreme Networks product.

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

Industry Canada Notice

CAN ICES-3 (A)/NMB-3(A)

This digital apparatus does not exceed the class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la class A prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

Class A ITE Notice

Warning

This equipment is compliant with Class A of CISPR 32. In a residential environment this equipment may cause radio interference.

Korea EMC Statement

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

Australia (RCM)

Warning

This equipment is compliant with Class A of CISPR 32. In a residential environment this equipment may cause radio interference.

Electromagnetic Compatibility (EMC)

This product complies with the following: FCC 47 CFR Part 15 Subpart B Class A (US), ICES-003 (Canada), EN 55032 (ITE Emissions), EN 55024 (ITE Immunity), EN 61000-3-2 (Harmonics), EN 61000-3-3 (Flicker), 2014/30/EU (EMC Directive), EN 300 386 (Telecom), EN 55011 (ISM), EN 61000-6-2 (Ind. Immunity), EN 61000-6-4 (Ind. Emissions), RCM (Australia), VCCI (Japan), MSIP KCC (Korea), BSMI (Taiwan), ANATEL (Brazil), CCC (China).

VCCI Notice

This is a Class A product based on the standard of the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). If this equipment is used in a domestic environment, radio disturbance may arise. When such trouble occurs, 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

BSMI EMC Statement - Taiwan

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

警告使用者:

此為甲類資訊技術設備，於居住環境中使用時，可能會造成射頻

擾動，在此種情況下，使用者會被要求採取某些適當的對策。

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。

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.

Hazardous Substances

This product complies with the requirements of Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

Hazardous Substances- China and Taiwan BSMI RoHS

Guidance concerning the China and Taiwan BSMI RoHS (Restriction of Hazardous Substances) directive for this Extreme Networks product can be found on the following web page: www.extremenetworks.com/company/legal/restriction-of-hazardous-substances/

The page contains tables detailing the presence of 10 substances defined by the RoHS directive.

European Waste Electrical and Electronic Equipment (WEEE) Notice

European Waste Electrical and Electronic Equipment (WEEE) Notice In accordance with Directive 2012/19/EU of the European Parliament on waste electrical and electronic equipment (WEEE):

1. The symbol above indicates that separate collection of electrical and electronic equipment is required.
2. When this product has reached the end of its serviceable life, it cannot be disposed of as unsorted municipal waste. It must be collected and treated separately.
3. It has been determined by the European Parliament that there are potential negative effects on the environment and human health as a result of the presence of hazardous substances in electrical and electronic equipment.
4. It is the users' responsibility to utilize the available collection system to ensure WEEE is properly treated.

For information about the available collection system, please contact Extreme Customer Support at +353 61 705500 (Ireland).

Index

Numerics