8820 Series Installation Guide

Setup and Configuration

9037376-00 Rev. AB
April 2026

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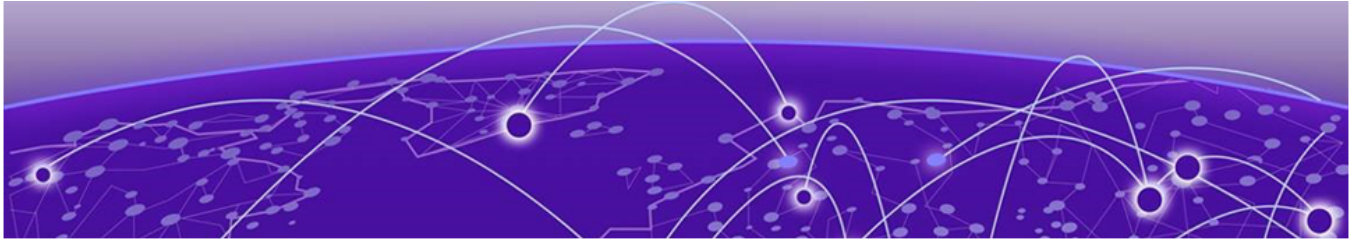

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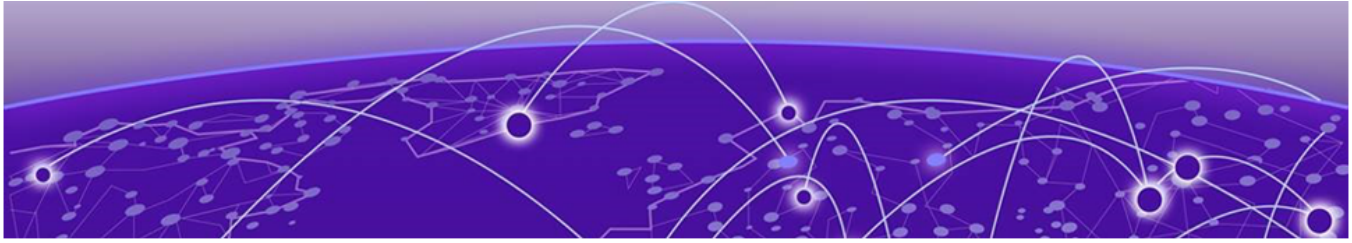

Abstract

This installation guide for the Extreme 8820 Series switches, Revision AB (April 2026), provides detailed technical guidance for installing, configuring, and maintaining high-density fixed-form-factor switches supporting Extreme OS ONE and Extreme SLX-OS. It describes the hardware architecture and capabilities of the 8820-40C and 8820-80C platforms, including 40 or 80 QSFP28 ports supporting 10/25/40/100 GbE, deep buffering, modular 1600 W AC/DC power supplies with N+1 or 2+2 redundancy, and hot-swappable fan modules with front-to-back or back-to-front airflow options. The guide presents step-by-step procedures for site preparation, rack mounting, grounding, power and cooling alignment, cabling, and component replacement. Software activation sections cover initial console access, OS installation via ONIE, password hardening, and management using CLI, REST, NETCONF/YANG, SNMP, and lights-out BMC functions. Monitoring and troubleshooting rely on detailed LED diagnostics, while technical specifications document environmental limits, power behavior, and MTBF. The content targets experienced network administrators and data-center or service-provider deployment scenarios.

Introduction to the Extreme 8820 Installation Guide

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 *Extreme OS ONE SR Deployment Guide* and the *Extreme OS ONE Command Reference* for your version of the Extreme OS ONE operating system for information about configuring Extreme Networks switches.

See the *Extreme SLX-OS Management Configuration Guide* and the *Extreme SLX-OS Command Reference* for your version of the SLX-OS operating system for information about configuring Extreme Networks devices.

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

Read the following topics to learn about:

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

Text Conventions

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

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

Table 1: Notes and warnings

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

Table 2: Text

Convention	Description
`screen displays`	This typeface indicates command syntax, or represents information as it is displayed on the screen.
The words *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.

Table 3: Command syntax (continued)

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

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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
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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.

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

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- Content errors, or confusing or conflicting information.

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

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

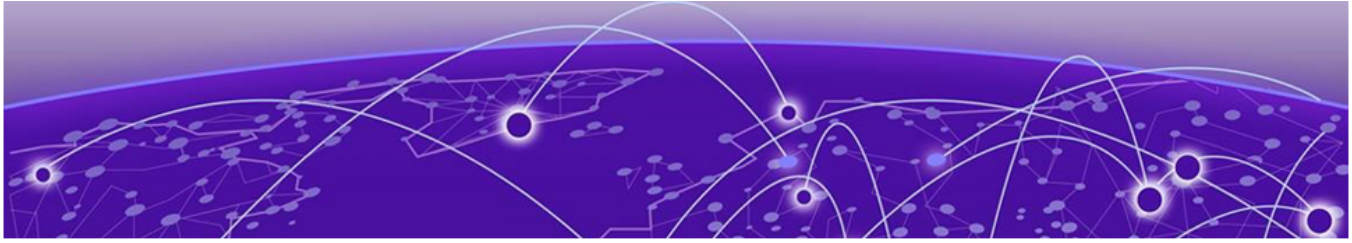
New in this Guide

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

April 2026 Revisions

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

Description	Section
Extreme OS ONE operating system support	Introduction to the Extreme 8820 Installation Guide on page vii Extreme 8820 Overview on page 13 Manage Your Switch on page 18 Login for the First Time on Extreme OS ONE on page 54



Extreme 8820 Overview

Each Extreme 8820 switch is a high density, fixed form factor switch and router with 80 x 100 GbE or 40 x 100 GbE ports to deliver the scale and performance needed to address the explosive growth in network bandwidth, devices, and services. This platform provides carrier-class advanced features that leverage proven Extreme Networks routing, MPLS, Carrier Ethernet, VXLAN overlay technology, and Dual Stack 1Pv4/1Pv6 functionality, deployed in the most demanding service providers, internet exchange points (IXPs) and large enterprise data centers.

The Extreme 8820 switch runs Extreme Networks Extreme OS ONE operating system and the Extreme SLX-OS operating system.

Extreme OS ONE

Extreme OS ONE ™ is a cloud-native network operating system (OS) based on a microservices architecture featuring in-service maintainability and is fully API driven for management programmability. Extreme OS ONE is a high-performance network operating system designed for data center, service provider, and enterprise networking environments.

Management

The switch supports connections using the RJ45 serial console port or the Ethernet management port to view and manage the switch configuration. For more information on switch connection methods, see Manage Your Switch. For switch connection details, see Connect to a Management Console on page 53.

After connecting your switch, use the management functions built into the device to monitor the port status, physical status, and other information to help you analyze

device performance and to accelerate system debugging. The device automatically performs a power-on self-test (POST) each time it is turned on.

Table 4: Management options for the device

Management tool	Out-of-band support	In-band support	
Command line interface (CLI)	Ethernet or serial connection	N/A	*Extreme SLX-OS Command Reference*
REST or NETCONF/ YANG APIs	Ethernet connection	Yes	*Extreme SLX-OS REST API Guide* *Extreme SLX-OS RESTCONF Guide* *Extreme SLX-OS NETCONF Operations Guide* *Extreme SLX-OS YANG Reference Guide*
Standard SNMP applications	Ethernet or serial connection	N/A	

Note
There is also a Type A USB 2.0 port labeled USB on the front panel that can interface with USB storage devices.

Cooling

Each switch is cooled by hot-swappable field replaceable fan modules. The switch supports both front-to-back and back-to-front airflow for switch cooling. Switch fans are not responsible for cooling the power supplies; power supplies have integrated cooling fans that operate independently of the switch fan. Fans are ordered separately for base 8820-40C and 8820-80C switches. Fans are included with other switches.

For more information about the fan modules used in the switch, see Fan Modules for Use with Your Switch.

Power Supplies

Each switch supports hot-swappable modular AC or DC power supplies that provide enough power for the needs of the switch. Power supplies have integrated cooling fans that operate independently of the switch fans for power supply cooling and are not responsible for cooling the switch. Power supplies are ordered separately for base 8820-40C and 8820-80C switches. Power supplies are included with other switches. Power supplies are 1 + 1 redundant for 8820-40C switches. Power supplies are 2 + 2 redundant for 8820-80C switches.

For more information about the power supplies used in the switch, see Power Supplies for Use with Your Switch.

Operating Temperatures

The operating temperatures and operating altitude for front-to-back airflow models are 0°C to 40°C (32°F to 104°F) up to 6,000 ft (1800m). The operating temperatures and operating altitude for back-to-front airflow models are 0°C to 25°C (32°F to 77°F) up to 6,000 ft (1800m).

Feature Licensing

For Extreme SLX-OS licensing for Extreme 8720 switches, refer to the *Extreme SLX-OS Software Licensing Guide*.

Table 5: Switch License Option

Part number	Description
8000-PRMR-LIC-P	Extreme 8000 Premier Feature License (Includes Insight Architecture).

For Extreme OS ONE licensing for Extreme 8720 switches, see the Licensing chapter in the *Extreme OS ONE User Guide* for your version of the Extreme OS ONE operating system.

Extreme 8820-40C Switch Features

The Extreme 8820-40C includes the following models:

8820-40C

The 8820-40C base switch includes six unused fan slots and two unused power supply slots. Fan modules and power supply modules must be ordered separately.

8820-40C-AC-F

The 8820-40C-AC-F switch includes six fan modules and two AC power supplies. Airflow for both the fan modules and the power supplies modules is front-to-back.

8820-40C-AC-R

The 8820-40C-AC-R switch includes six fan modules and two AC power supplies. Airflow for both the fan modules and the power supplies modules is back-to-front.

8820-40C-DC-F

The 8820-40C-DC-F switch includes six fan modules and two DC power supplies. Airflow for both the fan modules and the power supplies modules is front-to-back.

8820-40C-DC-R

The 8820-40C-DC-R switch includes six fan modules and two DC power supplies. Airflow for both the fan modules and the power supplies modules is back-to-front.

The front panel of the 8820-40C switch includes:

1 = Status LEDs
2 = 40 x 10/25/40/100Gb QSFP28 ports

3 = 10/100/1000BASE-T out-of-band management port
4 = Type A USB storage port
5 = Serial console RJ-45 port

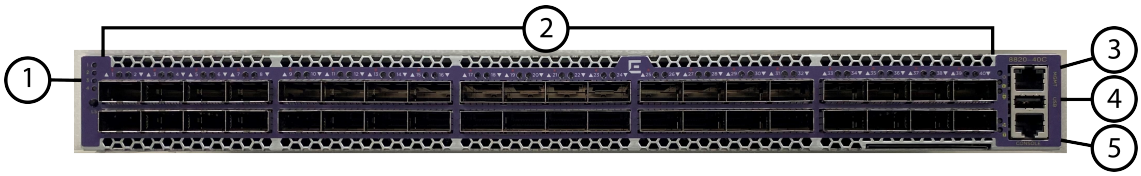


Figure 1: Extreme 8820-40C Front Panel

The rear panel of the switch includes:

1= 6 x fan modules
2 = 2x power supply modules

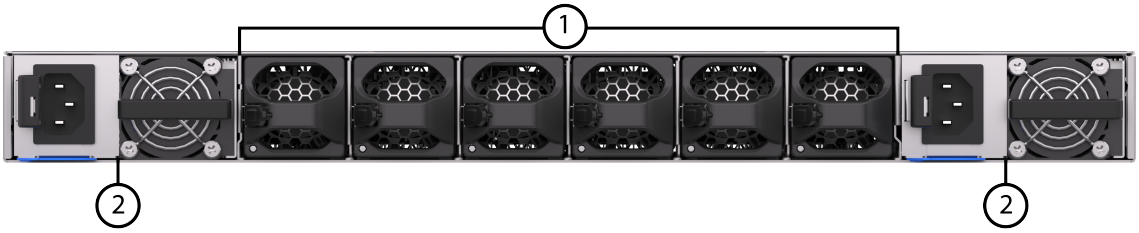


Figure 2: Extreme 8820-40C Rear Panel

Extreme 8820-80C Switch Features

The Extreme 8820-80C includes the following models:

8820-80C

The 8820-80C base switch includes four unused fan slots and four unused power supply slots. Fan modules and power supply modules must be ordered separately.

8820-80C-AC-F

The 8820-80C-AC-F switch includes four fan modules and four AC power supplies. Airflow for both the fan modules and the power supplies modules is front-to-back.

8820-80C-AC-R

The8820-80C-AC-R switch includes four fan modules and four AC power supplies. Airflow for both the fan modules and the power supplies modules is back-to-front.

8820-80C-DC-F

The 8820-80C-DC-F switch includes four fan modules and four DC power supplies. Airflow for both the fan modules and the power supplies modules is front-to-back.

8820-80C-DC-R

The 8820-80C-DC-R switch includes four fan modules and four DC power supplies. Airflow for both the fan modules and the power supplies modules is back-to-front.

The front panel of the Extreme 8820-80C switch includes:

1 = Status LEDs
2 = 80 x 10/25/40/100Gb QSFP28 ports

3 = 2 x 10/100/1000BASE-T out-of-band management port
4 = Type A USB storage port
5 = Serial console RJ-45 port

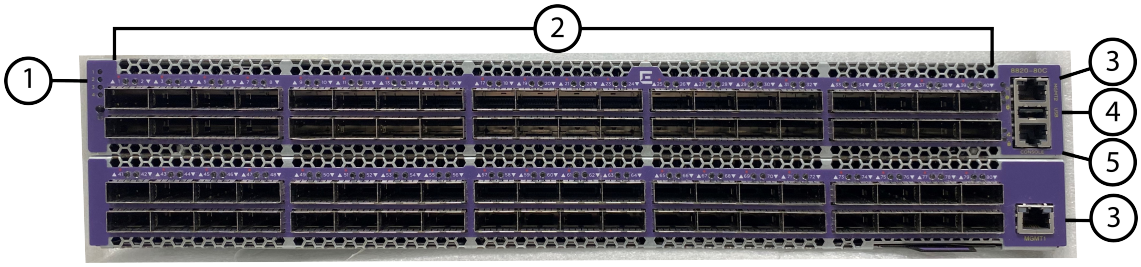


Figure 3: Extreme 8820-80C Front Panel

The rear panel of the switch includes:

1 = 4 fan modules
2 = 4 power supply modules

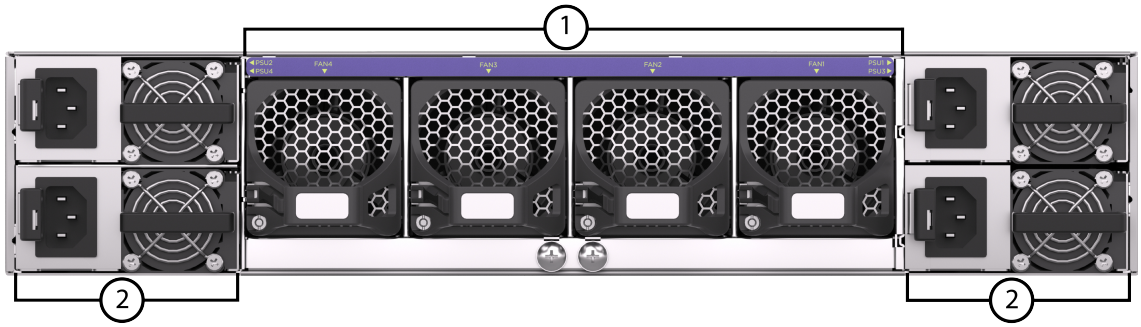
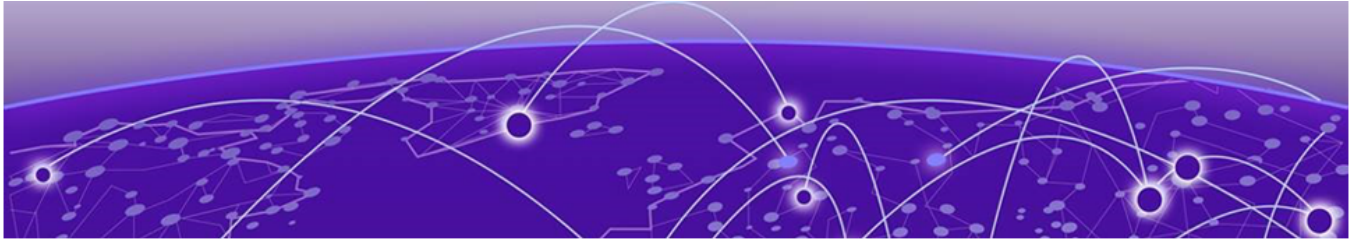


Figure 4: Extreme 8820-80C Rear Panel



Manage Your Switch

Each switch can be flexibly managed though the CLI for manual configuration, or through REST or NETCONF/YANG APIs, or standard SNMP applications.

Connect to Your Switch

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

RJ45 serial console port

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

Ethernet management port

Attach an Ethernet cable to an Ethernet management port to connect the system to an out-of-band management network to manage the switch. The 8820-40C switch has one Ethernet management port. The 8820-80C switch has dual management ports. The primary port, MGMT1, is directly connected to the CPU. The secondary port, MGMT2, is connected to a switch so that the CPU and BMC can share the port. An Ethernet management port provides dedicated remote access to the switch using TCP/IP. The switch uses an Ethernet management port only for host operation, not for switching or routing.

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

The Ethernet management port is located on the front panel of the switch. It supports 10/100/1000 Mbps speeds.

For switch connection details, see Connect to a Management Console on page 53.

Configure and Operate Your Switch

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

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

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

ONE operating system. For more information on Extreme SLX-OS, see the *Extreme SLX-OS Management Configuration Guide* for your version of the Extreme SLX-OS operating system.

REST API

The REST API (Representational State Transfer Application Programming Interface) can be used for managing and configuring switches through a programmatic interface. It is HTTP-based and allows clients to interact with the server and operational data. It can be used for out-of-band and in-band management through an Ethernet connection. The REST API can be accessed through the RESTCONF interface after it has been enabled in the operating system. Refer to the REST API guide for the switch operating system for more information.

NETCONF Interface

NETCONF (Network Configuration Protocol) is a protocol used for managing and configuring network devices. NETCONF APIs allow for programmatic access to the switch configuration and operational data. It can be used for in-band management through an Ethernet connection. NETCONF must be enabled in the operating system on the switch and can be accessed using a NETCONF client. Refer to the NETCONF API guide for the switch operating system for more information.

Lights Out Management (LOM)

The switch contains a baseboard management controller (BMC) for lights-out management (LOM) for remote operations such as reboots, shutdowns, and out-of-band troubleshooting.

Simple Network Management Protocol (SNMP)

SNMP provides facilities to manage and monitor network resources using agents, managers, the SNMP protocol, and Management Information Bases (MIBs). SNMP must be configured on the switch and accessed through an SNMP manager. For more information on Extreme OS ONE, see the *Extreme OS ONE Switching Management Configuration Guide* and the *Extreme OS ONE Switching Command Reference* for your version of the Extreme OS ONE operating system. For more information on Extreme SLX-OS, see the *Extreme SLX-OS Management Configuration Guide* for your version of the Extreme SLX-OS operating system.

Fan Modules for Use with Your Switch

The Extreme 8820 switch is designed to operate with hot-swappable internal fan modules that provide the cooling needed for the switch to operate. The Extreme 8820-40C models can include up to six redundant, hot-swappable fan modules (5+ 1 redundancy). The Extreme 8820-80C models can include up to four redundant, hot-swappable fan modules (3+ 1 redundancy). The fan modules in the switch chassis can be removed and replaced without special tools. The switch can continue operating while a fan is being replaced (hot-swap)

Switch fans are not responsible for cooling the power supplies; power supplies have integrated cooling fans that operate independently of the switch fan. The switch supports both front-to-back and back-to-front airflow for switch cooling. Fan module slots are located on the rear panel of the switch.

Fans are ordered separately for base 8820-40C and 8820-80C switches. Fans are included with other switches.

Precautions specific to fan Modules

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

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

Caution
Ensure that the airflow direction of the power supply unit matches that of the installed fan tray. The power supplies and fan trays are clearly labeled with either a green arrow with an "E", or an orange arrow with an "I."

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

Extreme 8820-40C Fan Modules

Two fan module options, with front-to-back or back-to-front airflow, are available for the Extreme 8820-40C switches:

- Part number XN-FAN-003-F provides front-to-back airflow for 8820-40C switch cooling.
- Part number XN-FAN-003-R provides back-to-front airflow for 8820-40C switch cooling.

For information on installing or replacing a fan module, see Replace Fan Modules.

Each fan module, located on the rear panel of the switch, has a status LED that is green if that fan module is working properly, and is red if there is a fault condition. All other status LEDs are on the front panel of the switch, including a fan module LED. See Monitor the Switch for details.

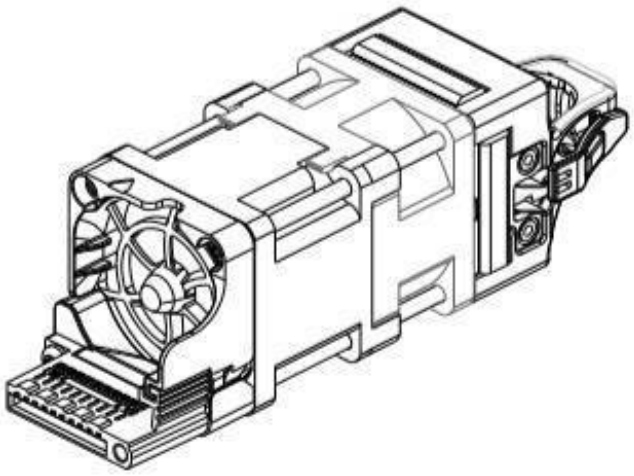


Figure 5: Extreme 8820-40C fan module

Extreme 8820-80C Fan Modules

Two fan module options, with front-to-back or back-to-front airflow, are available for the Extreme 8820-80C models.

- Part number XN-FAN-004-F provides front-to-back airflow for 8820-80C switch cooling.
- Part number XN-FAN-004-R provides back-to-front airflow for 8820-80C switch cooling.

For information on installing or replacing a fan module, see Replace Fan Modules.

Each fan module, located on the rear panel of the switch, has a status LED that is green if that fan module is working properly, and is red if there is a fault condition. All

other status LEDs are on the front panel of the switch, including a fan module LED. See Monitor the Switch for details.

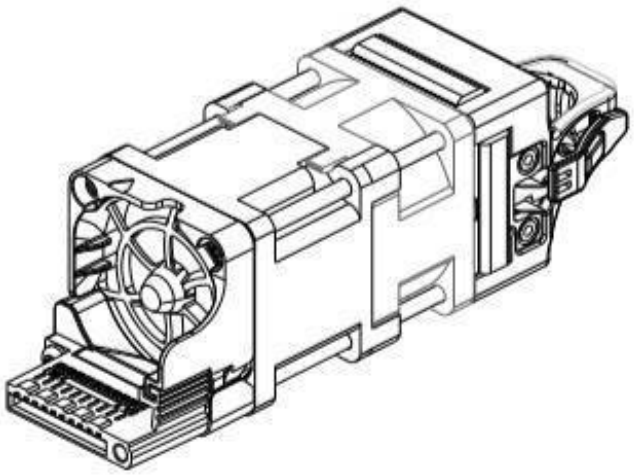


Figure 6: Extreme 8820-80C fan module

Power Supplies for Use with Your Switch

The Extreme 8820 switch is designed to operate with hot-swappable internal AC or DC power supply modules that provide all of the power needed for the switch to operate. You can remove one power supply module without interrupting the switch's operation (hot-swap). Installed power supplies can be AC, DC, or a combination of AC and DC.

Power supplies have integrated cooling fans that operate independently of the switch fans for power supply cooling and are not responsible for cooling the switch. All installed power supplies must blow air in the same direction and must match the airflow direction of the installed fan modules. Power supply slots are located on the rear panel of the switch.

The Extreme 8820-40C switch supports two power supply modules (1 + 1 redundancy). The Extreme 8820-80C switch supports four power supply modules (2 + 2 redundancy). Power supplies are ordered separately for base 8820-40C and 8820-80C switches. Power supplies are included with other switches.

Precautions Specific to Power Supply Modules

Warning
Make sure that the power source circuits are properly grounded, then use the power cord supplied with the device to connect it to the power source.

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

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

Caution
Ensure that the airflow direction of the power supply unit matches that of the installed fan tray. The power supplies and fan trays are clearly labeled with either a green arrow with an "E", or an orange arrow with an "I."

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

1600 W AC Power Supplies

Two 1600 W AC power supply options, with front-to-back or back-to-front airflow, are available for the the Extreme 8820.

- 1600W AC power supply - front-to-back airflow (part no. XN-ACPWR-1600W-F)
- 1600W AC power supply - back-to-front airflow (part no. XN-ACPWR-1600W-R)

Power supplies are ordered separately for base 8820-40C and 8820-80C switches. Power supplies are included with other switches.

The 1600 W AC power supply has a (C14) power inlet that requires a (C13) power cord.

Note
AC power input cords are not provided with AC power supplies. You can order an appropriate cord from Extreme Networks or from your local supplier. The power cord must meet the requirements listed in Power Cord Requirements for AC-Powered Switches and AC Power Supplies on page 86.

For information on installing or replacing an AC power supply, see Install a 1600 W Internal AC Power Supply.

The 1600 W AC power supply has the status LEDs listed in Table 6. The LEDs are located on the end of the power supply unit, arranged vertically to the left of the power cord receptacle.

Table 6: 1600 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

1600 W DC Power Supplies

Two 1600 W DC power supply options, with front-to-back or back-to-front airflow, are available for the Extreme 8820.

- 1600W DC power supply - front-to-back airflow (part no. XN-DCPWR-1600W-F)
- 1600W DC power supply - back-to-front airflow (part no. XN-DCPWR-1600W-R)

Power supplies are ordered separately for base 8820-40C and 8820-80C switches. Power supplies are included with other switches. Power supplies are 1 + 1 redundant for 8820-40C switches. Power supplies are 2 + 2 redundant for 8820-80C switches.

For information on installing or replacing a DC power supply, see Install a 1600 W Internal DC Power Supply.

The 1600 W DC power supply has the status LEDs listed in Table 7. The LEDs are located on the end of the power supply unit, arranged vertically to the left of the power cord receptacle.

Table 7: 1600 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

Site Preparation

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

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

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

Note
Before installing or removing any components of the system, and before carrying out any maintenance procedures, read the safety information in the Technical Specifications on page 76 topic.

Plan Your Site

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

1. Meeting site requirements.

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

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

- Equipment rack requirements

2. Evaluating and meeting cable requirements.

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

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

   For power specifications of the switches, see the specific switch listings in Technical Specifications on page 76.

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 8 are authorities on electrical codes.

Table 8: 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 of1934. 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 30 for more information.
- Use appropriate AC or DC power, power distribution, and grounding for your specific installation.

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

Note
Consult an electrical contractor for commercial building and wiring specifications.

Control the Temperature

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

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

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

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

Table 9 summarizes the behavior of Extreme Networks switches when they experience high operating temperatures.

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

Table 9: Thermal Shutdown and Restart Behavior

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

Control the Humidity Level

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

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

Protect Your System from ESD (Electrostatic Discharge)

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

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

  Check the appropriateness of floor mats and flooring.
- Connect metal chassis, conduit, and other metals to ground using dedicated grounding lines.
- Use electrostatically safe equipment.

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

Rack Specifications and Recommendations

Racks should conform to conventional standards.

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

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

Mechanical Recommendations for the Rack

Use equipment racks that meet the following mechanical recommendations:

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

Ground the Rack

The rack must be properly grounded.

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

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

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

  AC-powered switches do not need separate chassis grounding.
- Position the earth ground as close to the equipment rack as possible to maintain the shortest wiring distance possible.
- Use a ground impedance tester or micro-ohm meter to test the quality of earth ground connection at the chassis. This will ensure good grounding between the chassis, rack, and earth ground.

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

Provide Adequate Space for the Rack

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

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

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

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

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

Secure the Rack

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

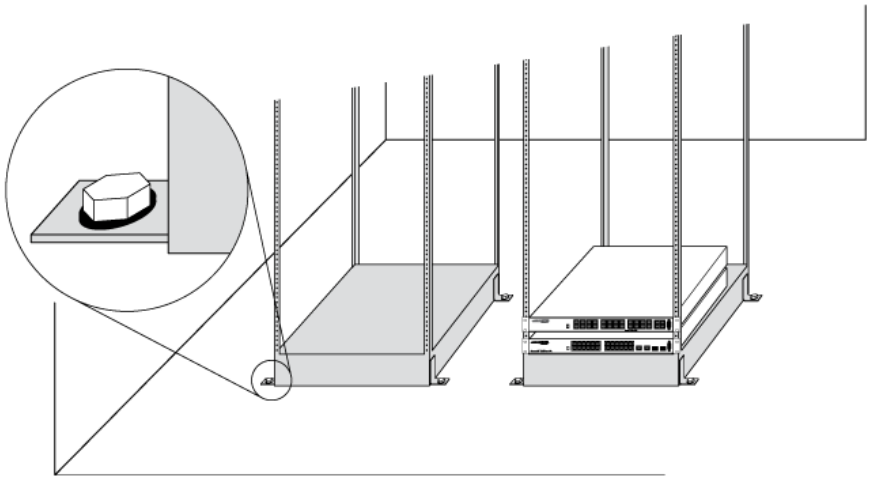


Figure 7: Properly Secured Rack

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 8 on page 34.
- 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.

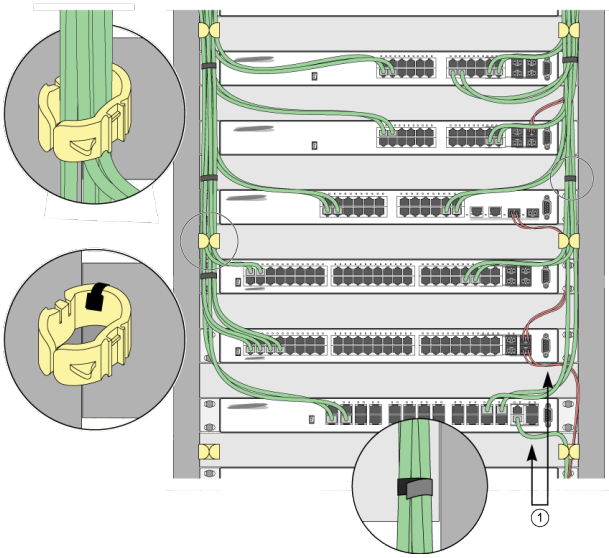


Figure 8: Properly Installed and Bundled Cable

1 = Ensure adequate slack and bend radius

Handle Fiber Optic Cable

Fiber optic cable must be handled carefully during installation.

Every cable has a minimum bend radius, and fibers will be damaged if the cables are bent too sharply. It is also important not to stretch the cable during installation. Ensure that the bend radius for fiber optic cables is equal to at least 5 cm (2 in) for each 90-degree turn as shown in Figure 9.

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.

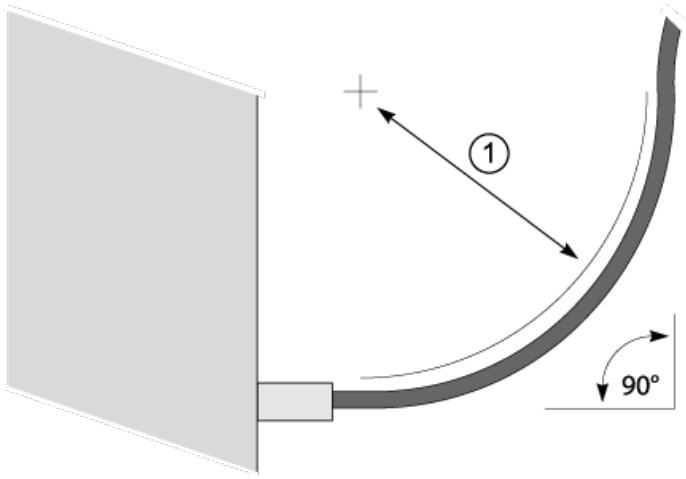


Figure 9: Bend Radius for Fiber Optic Cable
1 = Minimum 5 cm (2 in) radius in 90° bend

Cable Distances and Types

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

Use RJ45 Connector Jackets

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

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

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

Figure 10 shows examples of recommended and non-recommended connector jacket types.

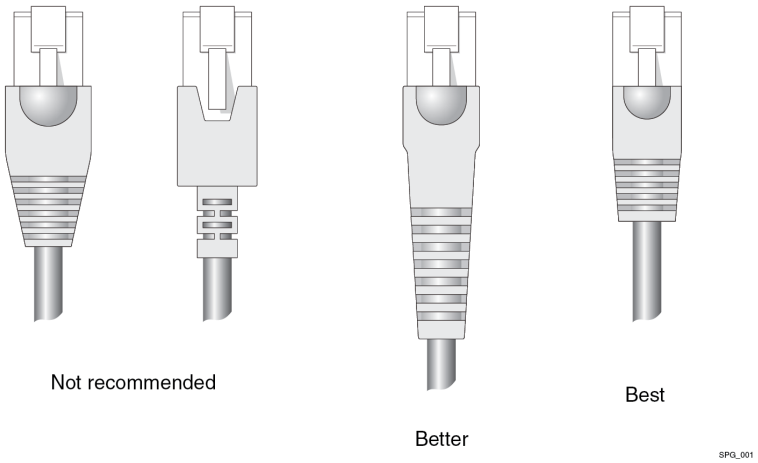


Figure 10: RJ45 Connector Jacket Types

Prevent Radio Frequency Interference (RFI)

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

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

To prevent RF interference, avoid the following situations:

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

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

Meet Power Requirements

Observe the following requirements and precautions for powering your hardware.

Power Supply Requirements

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

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

  If a power source fails, it will affect only the switch power supply to which it is connected. If all switch power supplies are connected to a single power source, the entire switch is vulnerable to a power source failure.
- In regions that are susceptible to electrical storms, the best practice is to plug your system into a surge suppressor.

For detailed power specifications for your equipment, see Technical Specifications on page 76.

Power Cord Requirements

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

UPS (Uninterruptible Power Supply) Requirements

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

A UPS traditionally can perform the following functions:

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

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

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

Select a UPS

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

- What are the amperage requirements?
- What is the longest potential time period that the UPS would be required to supply backup power?
- Where will the UPS be installed?
- What is the maximum transition time that the installation will allow? (See Provide a Suitable UPS Transition Time on page 38.)

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.)

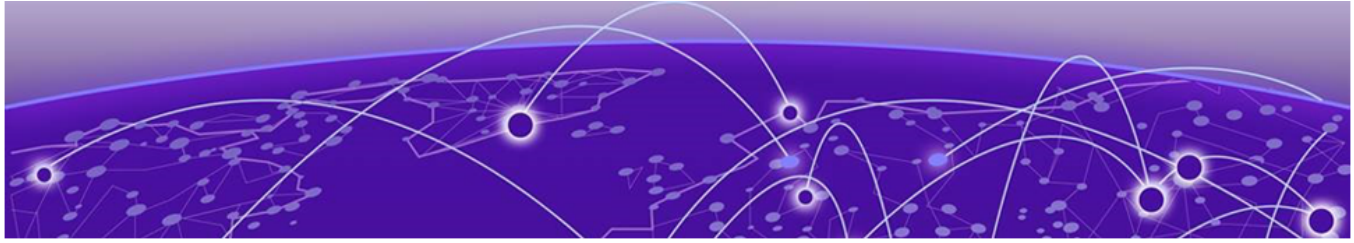
Follow Applicable Industry Standards

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: or .



Install Your Switch

Before you attempt to install or remove an Extreme Networks switch, read the precautions in Safety Considerations for Installation on page 40.

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

The installation process includes the following tasks:

Table 10: Switch Installation Tasks

Step	Procedure	Description
1	What You Will Need for the Installation on page 40	Prepare to install the switch
2	Attach Your Switch to a Rack or Cabinet on page 41	Install the switch in the rack.
4	Install Optional Components on page 50	Install optional components: optical transceivers and cables.
5	Install Internal Power Supplies on page 50	Install one or two power supplies if your switch does not come with an installed internal power supply. **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.
6	Connect Network Interface Cables on page 50	Connect network interface cables.

Table 10: Switch Installation Tasks (continued)

Step	Procedure	Description
7	Turn on the Switch on page 51	Power up the switch.
8	Activate and Verify the Switch on page 53	Perform initial network connection and configuration.

Safety Considerations for Installation

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

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

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

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

Do not cover vents that would restrict airflow.

Note
See Safety and Regulatory Information for additional safety and regulatory information. See Technical Specifications on page 76 for additional information regarding regulatory compliance certifications.

What You Will Need for the Installation

Ensure that you have followed the guidance in Site Preparation on page 26, and ensure that you have the appropriate people and tools on hand.

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

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

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

Check the *Quick Reference Guide* for your switch to see what hardware is provided in the switch packaging.

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

- Screwdriver for securing the rack mounting screws.
- #2 Phillips magnetic screwdriver to attach bracket screws that are provided with the switch.
- ESD-preventive wrist strap for installing optional ports at the back of the switch.

Attach Your Switch to a Rack or Cabinet

The switch can be attached to a standard 19-inch equipment rack, in either of the following ways:

- Four-post rack, using the mounting kit provided. The kit contains an instruction sheet, along with the following components:
  - Two mounting brackets, known as *inner members* 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 (6 count)
- Two-post rack, using mounting brackets (not provided) to attach the front or the middle of the switch to the posts.

The part number for the four-post mounting kit provided with 8820-80C switches is XN-4P-RKMT301. The part number for the four-post mounting kit provided with 8820-40C switches is XN-4P-RKMT302. The part number for the two-post mounting kit that is not provided, but can be ordered separately, is XN-2P-RMKIT-005.

Note
When you install Extreme Networks switches, it is a best practice that you have two people to maneuver the switch and the mounting hardware.

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

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

Attach the Switch to a Four-Post Rack

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

1. Separate the inner sliding rails from the outer rails by extending the rails and pulling on the disconnect latch. Note which direction the sliding rails slide from the outer rails for correct installation.

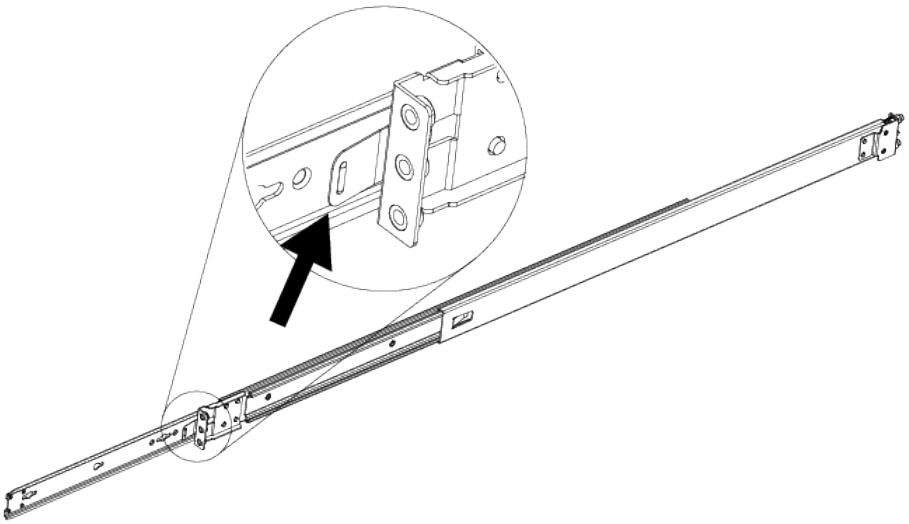


Figure 11: Separating the Inner Sliding Rails

2. Attach the outer rail (bracket) to the rack, securing it with the M5 screws.

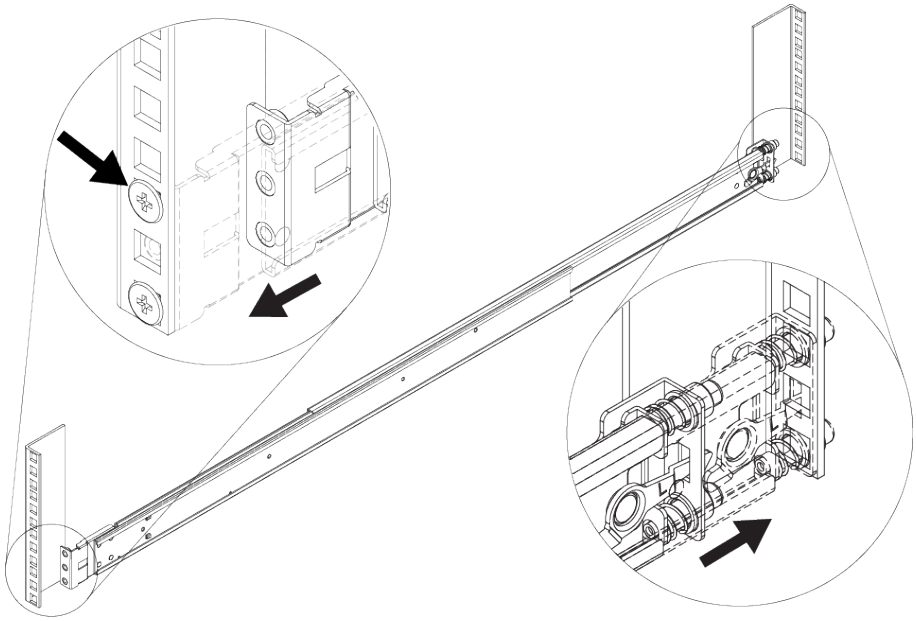


Figure 12: Attaching the Outer Rail

3. Attach an inner rail to the side of the switch, using the M4 screws.
   - If you are using the 1U long rack ears (already attached to the inner rail): Ensure that the rack ear is flush with the either the front or the rear panel of the unit and continue to step 4 on page 44.

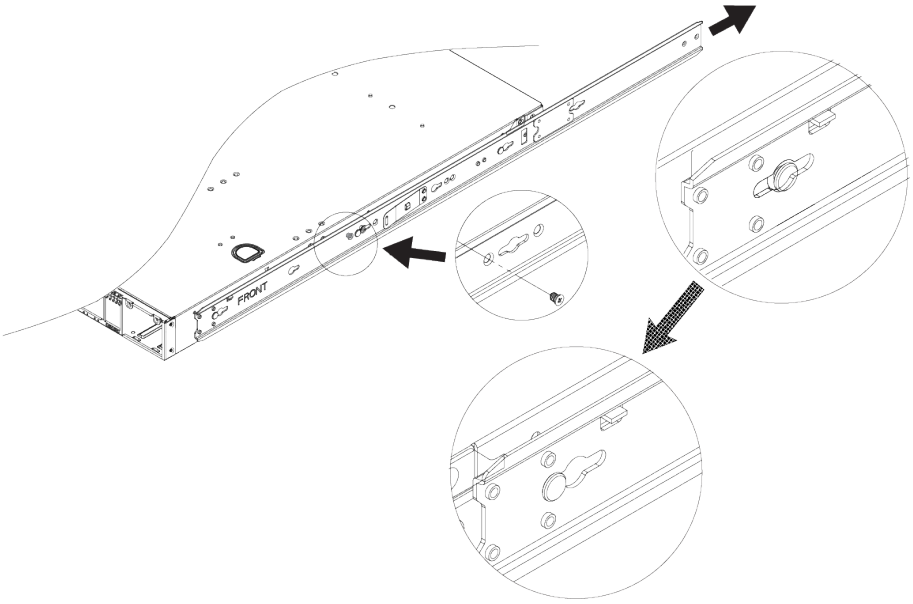


Figure 13: Front Installation: Attaching the Inner Rail

- If using the 1U or 2U short rack ears, attach one to the side of the switch using the #6-32 screws, so that the rack ear is flush with either the front or the rear panel of the switch.

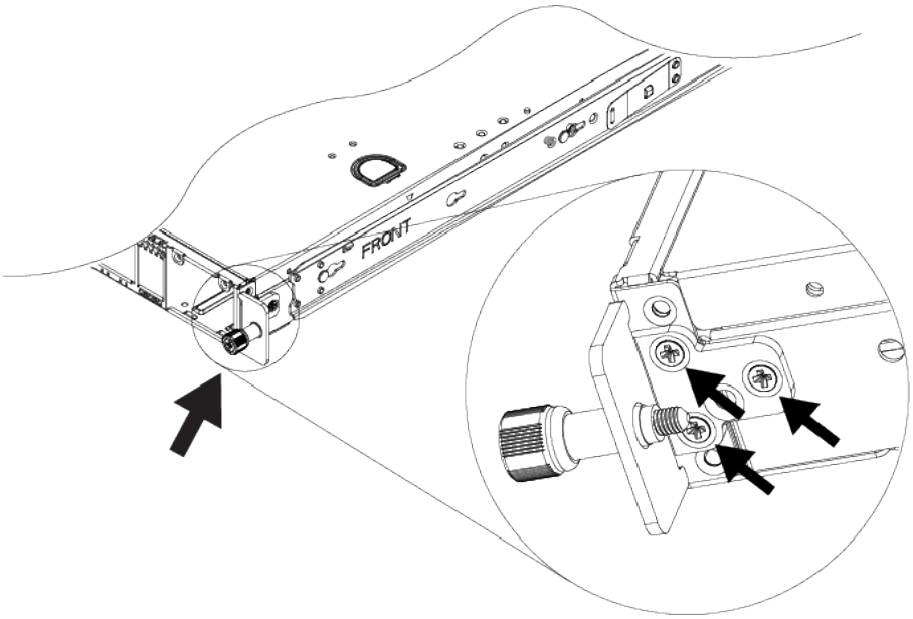


Figure 14: Front Installation: Attaching a Rack Ear

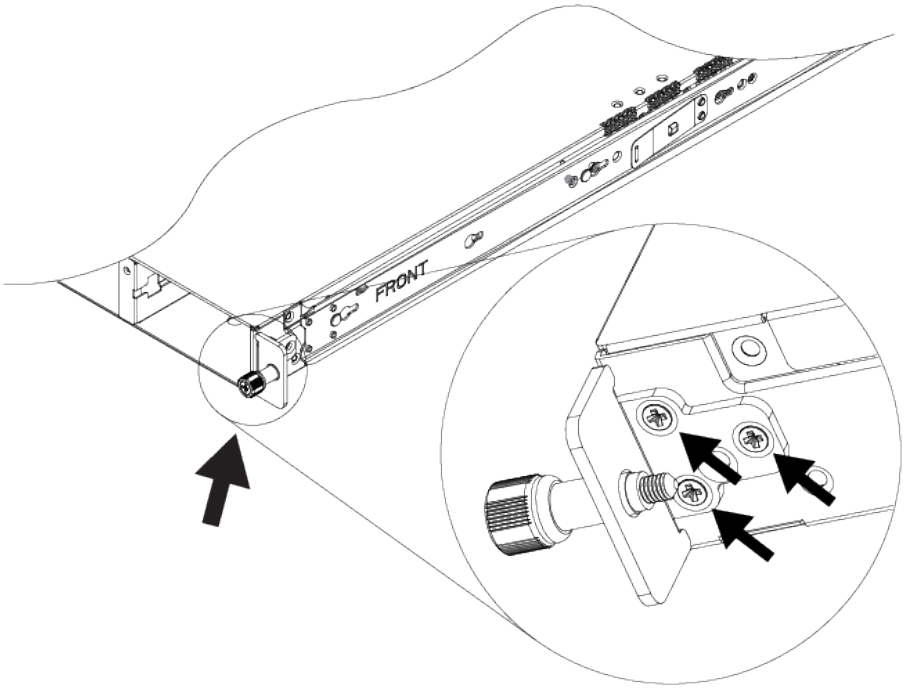


Figure 15: Rear Installation: Attaching a Rack Ear

4. Repeat steps 2 on page 42 and 3 for the other side of the switch.
5. Insert the switch into the rail kit. To install the switch in the front of the rack, slide the switch into the outer rails in the front of the rack.

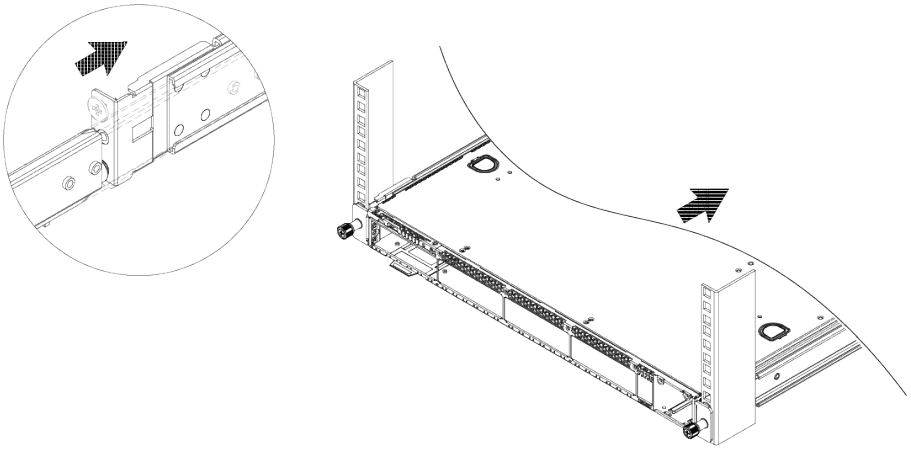


Figure 16: Front Installation: Inserting the Switch

To install the switch in the rear of the rack, slide the switch into the outer rails in the rear of the rack.

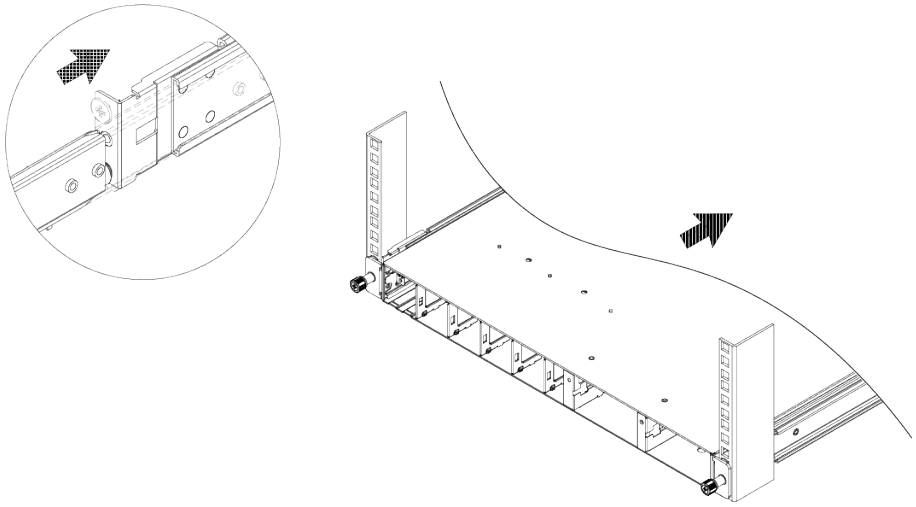


Figure 17: Rear Installation: Inserting the Switch

Secure the switch to the rack using the thumb screws on the mounting ears.

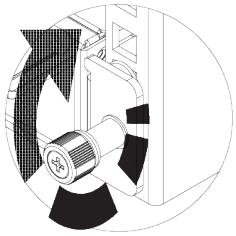


Figure 18: Secure the Switch

Attach the Switch to a Two-Post Rack

You can attach your switch to a two-post rack in mid-mount configuration.

Brackets for a two-post mount are not included in the box with your switch. However, a two-post mount kit can be ordered separately using part numbers XN-2P-RKMT299 for the Extreme 8820-40C or XN-2P-RKMT300 for the Extreme 8820-80C.

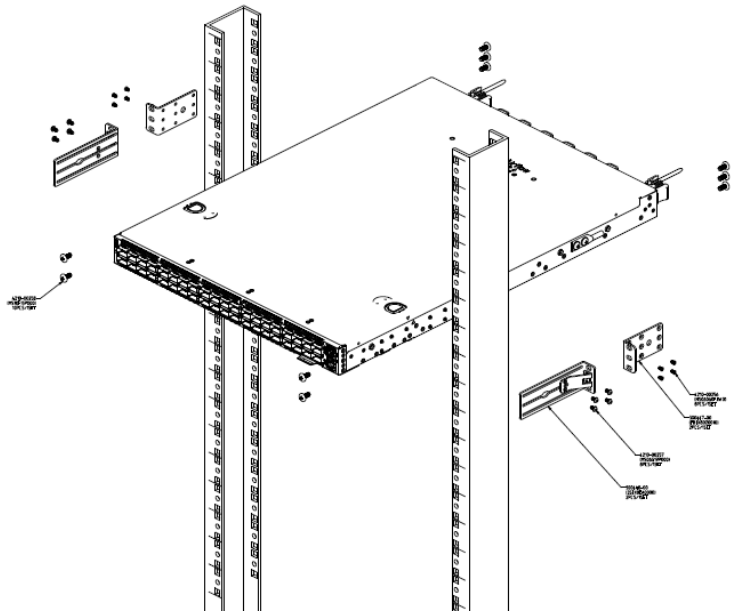


Figure 19: Extreme 8820-40C 2-post rack components

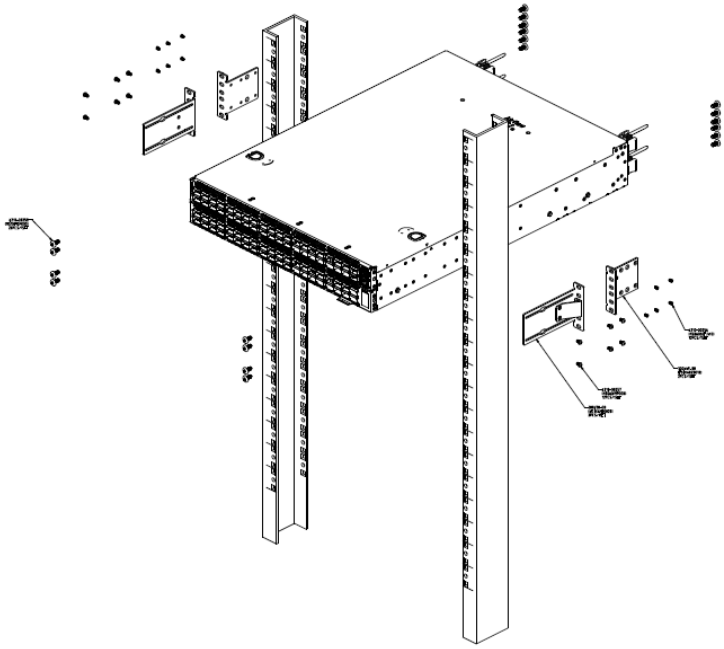


Figure 20: Extreme 8820-80C 2-post rack components

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 device housing.
   a. 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 21.

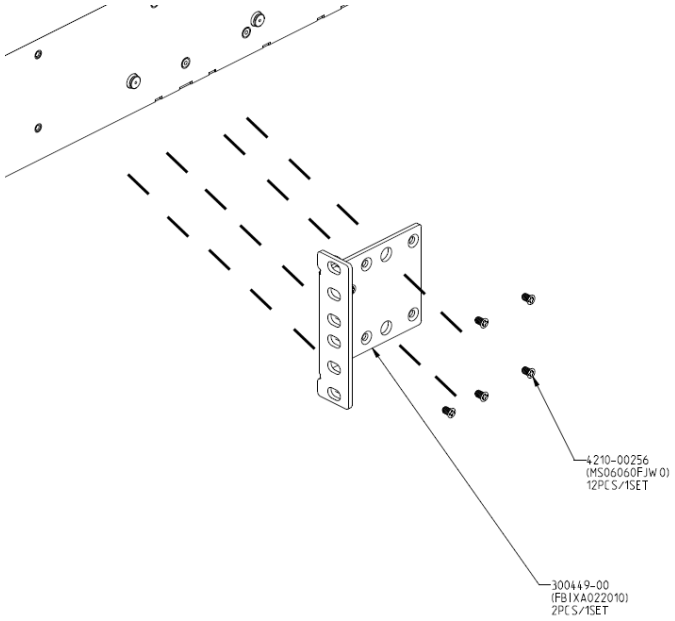


Figure 21: Attaching a Short Mounting Bracket (Ear): Middle of Switch

b. Use six 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 22.

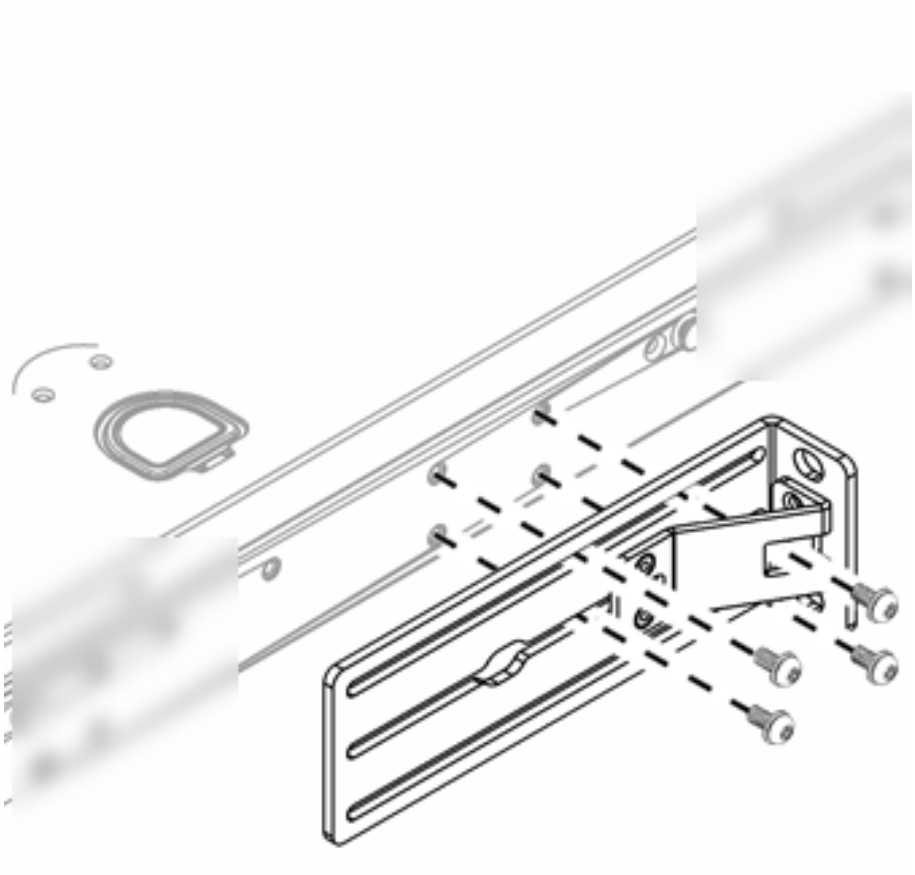


Figure 22: Attaching a Long Mounting Bracket: Middle of Switch

b. Use six 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.)

   See Figure 23 for the completed installation.

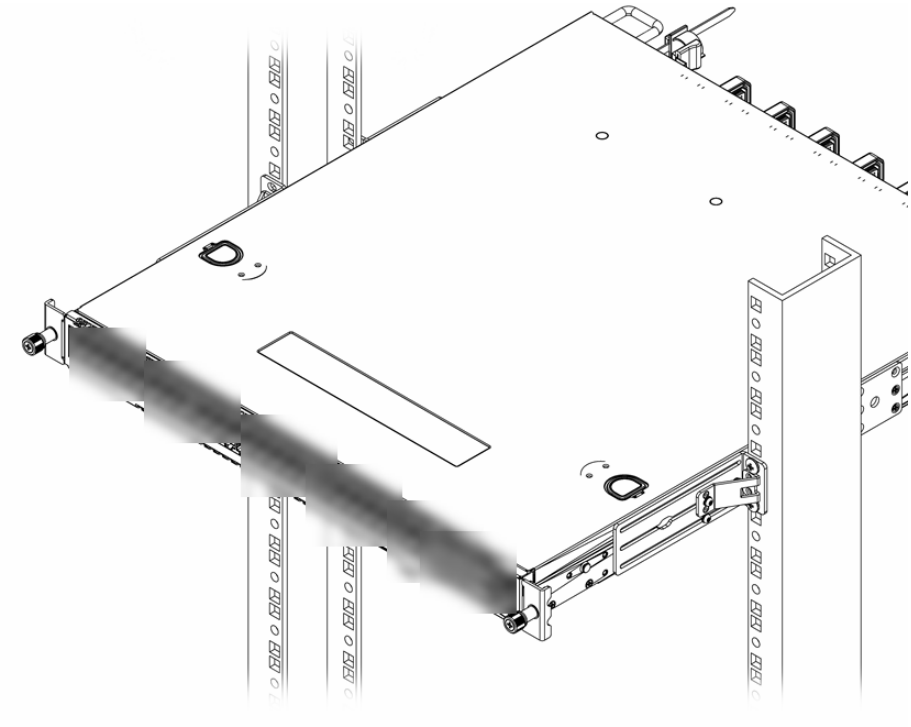


Figure 23: Two-Post Mid-Mount: Complete

7. For Extreme 8820-40C, install the ground lug cables to the rack using an M6 screw and the four screws provided (grounding screws for 2-post installation shipped with the switch in a separate bag).

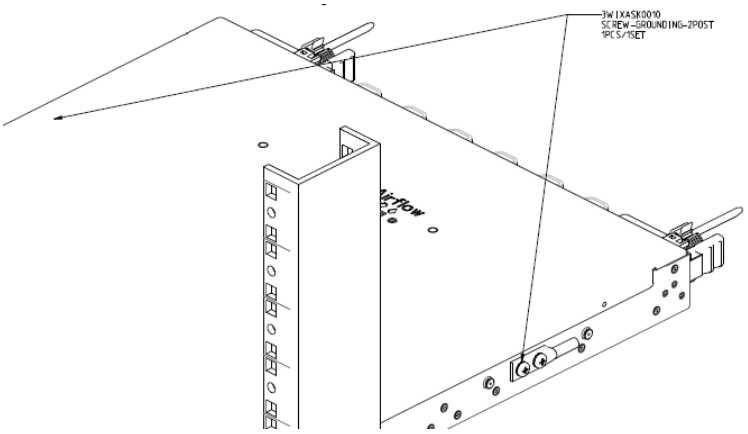


Figure 24: Extreme 8820-40C grounding location

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

If your switch comes with installed AC power supplies, skip to the topic: Install Optional Components on page 50.

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

Install Optional Components

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

For a list of the optical components supported with Extreme Networks devices, see the Extreme Optics website.

Pluggable Transceiver Modules

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

Optical Cables

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

Install Internal Power Supplies

If your switch does not come with an installed power supply, you can install one or two power supplies. All installed power supplies must blow air in the same direction and must match the airflow direction of the installed fan modules.

Note
Installed power supplies can be AC, DC, or a combination of AC and DC

- Power supplies with a **red** tab provide front-to-back airflow.
- Power supplies with a **blue** tab provide back-to-front airflow.

For installation instructions, see Replace Power Supplies on page 63.

Connect Network Interface Cables

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

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

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

1. Verify that you have identified the correct cable for the port.
2. Use an alcohol wipe or other appropriate cleaning agent to clean the cable connectors; make sure they are free of dust, oil, and other contaminants.

3. If you are using optical fiber cable, align the transmit (Tx) and receive (Rx) connectors with the correct corresponding connectors on the switch or the I/O module.
4. Press the cable connectors into their mating connectors on the switch or I/O module until the cable connector is firmly seated.
5. Repeat the preceding steps for the remaining cables on this or other switches or I/O modules.
6. Dress and secure the cable bundle to provide appropriate strain relief and protection against bends and kinks.

Turn on the Switch

Use the following instructions to turn on the switch

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

Connect AC Power

An AC power cord is not included with the AC power supply. You can purchase AC power cords for use in the US and Canada from Extreme Networks or from your local supplier. The cord must meet the requirements listed in Power Cord Requirements for AC-Powered Switches and AC Power Supplies on page 86.

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

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

If the power supply LEDs do not turn green, refer to Table 6 on page 24 for troubleshooting information.

When the power supply LED has turned green, follow the instructions in Activate and Verify the Switch on page 53.

Connect DC Power

Use the following instructions to connect the device to a DC power source.

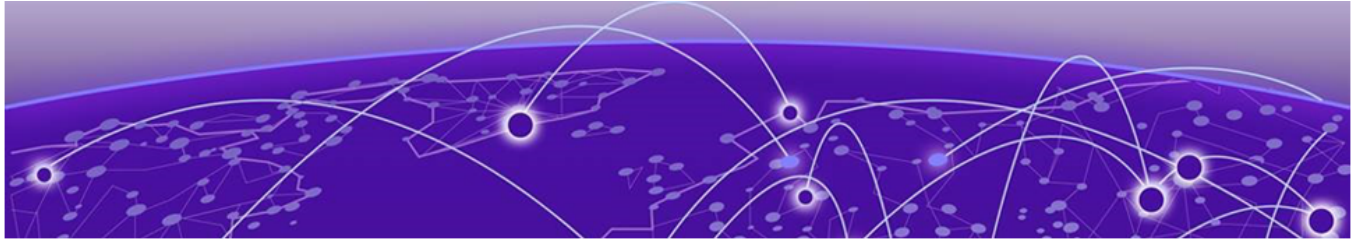
1. Verify that the DC circuit is de-energized.
2. Verify that the ground wire is connected to the grounding lug on the rear of the switch.

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

3. Verify that the DC power input cables are properly connected to the DC power supplies at the rear of the switch.
4. Energize the circuit.

If the power supply LEDs do not turn green, refer to Table 7 on page 25 for troubleshooting information.

When the power supply LED has turned green, follow the instructions in Activate and Verify the Switch on page 53.



Activate and Verify the Switch

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

Connect to a Management Console

The *management console* is a PC or terminal terminal-emulation software that is connected to the serial console port on the switch (an RJ45 jack) by a serial or console cable. The management console is used to monitor and configure the switch locally, using terminal emulator software such as HyperTerminal on a PC, or TERM, Tip, or Kermit in a LINUX environment.

Use the following instructions to connect the switch to a management console.

1. Verify that the switch is powered on by verifying that all power LED indicators on the management and interface ports, power supply and fan modules display a steady green light.
2. Connect the RJ-45 serial cable to the management Ethernet port of the switch.
3. Disable any serial communication programs running on the workstation (such as synchronization programs).
4. Open the terminal emulator software and configure the application with the following default communication protocol settings for the serial console interface.
   - In a Windows environment:

     Baud rate: 115200

     Data bits: 8

     Stop bit: 1

     Parity: None

     Flow control: None

     Note
     Flow control is not supported on the serial consoles when attached to remote terminal servers and must be disabled to ensure proper operation.

- In a LINUX environment, enter the following string at the prompt:

```
tip /dev/ttyb -115200
```

If ttyb is already in use, use ttya instead and enter the following string at the prompt:

```
tip /dev/ttya -115200
```

Login for the First Time on Extreme OS ONE

The Extreme 8820 can run Extreme Networks Extreme OS ONE operating system. Extreme OS ONE can be installed using ONIE (Open Network Install Environment), which acts as a bootloader and a lightweight Linux-based provisioning framework that allows vendors and users to install a network operating system over the network or from local media. ONIE, as a Linux-based provisioning framework, relies on Grub at login.

After connecting a management console to the switch, a login prompt displays. The default user ID is `admin` and the default password is `rocks`. You are required to change the default admin password and the Grub `root` user password at the same time. A best practice is to keep the password as `Rocks@123`, but you can choose your own password. To use the same password for the Extreme OS ONE admin user and the Grub `root` user, press **Enter**. For example:

```
Device: login: admin
Password:


*** Please change password for admin account and Grub bootloader now. ***
Use Control-C to exit or press 'Enter' key to proceed.

Changing default password for "admin" and Grub
Current admin password:
Enter new admin password:
Re-type new admin password:
Enter new password for Grub 'root' user login (Press Enter to use admin password for
Grub) : ONE OS 'admin' and Grub 'root' user passwords updated successfully
device#
```

Reboot the device by using the CLI or by powering off the device.

Login for the First Time on Extreme SLX-OS

The Extreme 8820 switch can run the Extreme SLX-OS operating system. Use the following information to login to Extreme SLX-OS for the first and complete the initial configuration tasks from the management console.

1. Log in to the console using *admin* as the default login name and *password* as the default password.

   As login to the device occurs, you are prompted to change the device passwords.

```
Please change passwords for switch default accounts now.
Use Control-C to exit or press 'Enter' key to proceed.
```

2. Press **Enter** to step through a procedure to change the passwords as shown in the following example. To skip modifying the password, press **Ctrl+C**.

```
Warning:  Access to  the Root  and Factory accounts may be
required  for proper  support  of  the switch.  Please  ensure  the Root
and Factory passwords are  documented in a secure location.  Recovery of
a lost Root or Factory password will result in fabric downtime.

for user - admin
Changing password for admin
Enter old password:
Enter new password:
Re-type new password:
passwd: all authentication tokens updated successfully
```

   Passwords can be 8 through 40 characters long. They must begin with an alphabetic character. They can include numeric characters, the period (.), and the underscore (_) only. Passwords are case-sensitive, and they are not displayed when you enter them on the command line. For more information on passwords, refer to *Extreme SLX-OS Security Configuration Guide* for the Extreme 8820 device.

The switch is ready for use.

To configure other switch features, see *Extreme SLX-OS Layer 2 Switching Configuration Guide* .

Monitor the Switch

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

System Status LEDs

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

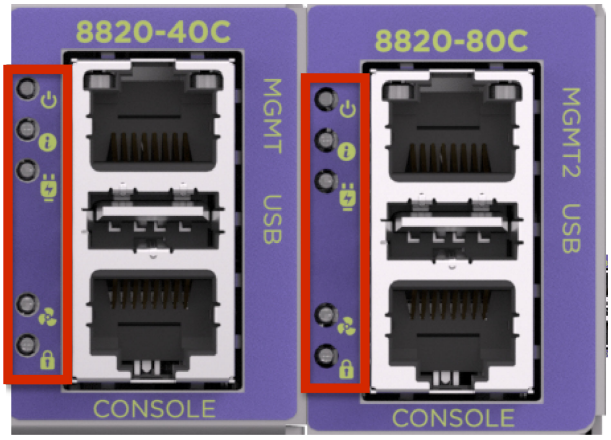


Figure 25: Extreme 8820 System Status LEDs

Table 11: System Status LEDs

LED	Color/State	Description
Power	Solid green	Valid power. All monitored voltages are nominal.
	Off	No power. Some power rails are dropping below specification.

Table 11: System Status LEDs (continued)

LED	Color/State	Description
System	Off	The unit is not operational.
	Solid green	Board is operational.
	Blinking amber/green	Attention (No definition). Controlled by SW.
	Solid amber	Fault/Initial state. This LED is lit during the reboot.
PSU Status	Off	No power.
	Solid green	Power on. Main and Standby output enabled with no PSU warning or fault detected.
	Solid amber	Fault. Power supply fault.
Fan Status	Off	No power.
	Solid green	All fans are operating normally.
	Solid amber	Fan failure.
Secure	Off	CeC1712 is booting up or fault. CeC1712 is performing the initial load (decrypt, validate, load) of its own code, prior to authenticating images. Or the CeC1712 was unable to decrypt, validate and load its own image.
	Slow blinking blue (1Hz)	CeC1712 is authenticating or updating images. CeC1712 is currently authenticating or copying golden image to primary.
	Fast blinking blue (4Hz)	CeC1712 authentication failed. Neither primary nor golden image successfully validated.
	Very slow blinking blue (0.25Hz)	Bypass authentication. Bypassing authentication for test or development only.
	Solid blue	CeC1712 authentication complete. CeC1712 successfully authenticated the BIOS Flash-0 and BMC Flash-0 images.

RJ-45 Management Port LEDs

The 1 Gb RJ-45 Management port includes two LEDs that are both amber and green. The LEDs are located on each side of the RJ-45 port. The LED on the left side is labeled Speed and the LED on the right side is labeled Link/Activity. The Extreme 8820-40C models include one management port on the front panel, while the Extreme 8820-80C models include two management ports on the front panel. The following table describes the meaning of the colors and states for the LEDs.

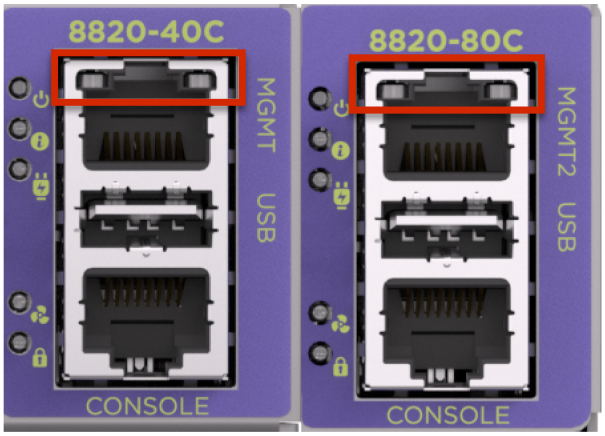


Figure 26: RJ45 Management Port LEDs

Table 12: 10/100/1000Base-T RJ-45 Management Port LEDs

LED	Color/State	Description
Speed	Off	The port is operating at 10 Mbps.
	Solid green	The port is operating at 1 Gbps.
	Solid amber	The port is operating at 100 Mbps.
Link/Activity	Off	No link.
	Solid green	The port has established a link. There is no data activity.
	Blinking green	The port has established a link and there is data activity.
	Slow blinking green	The port is disabled by the admin.
	Solid amber	Fault.

QSFP28 Port LEDs

Each port has one LED to indicate channel status. A channel selector switch enables you to display the status of individual channels. The selected channel is indicated in the display. The following table describes the states for the LED.

Figure 27: QSFP28 Port LEDs

4 Bit Selector Panel (Bit 3, 2, 1, 0)				QSFP28 Channel	Description	Port LED (if Error)	Port LED (if no error)
0	0	0	0	0 (Default) - Port and all channels	(Default) Indicate any error on port and all 4 lanes for any errors	Red or Yellow - if any error on port or any of the 4 lanes	Green - if no error on port and any of the 4 lanes
0	0	0	1	1	Indicate error on Lane 1	Red or Yellow - if any error on lane 1	Green - if no error on lane 1
0	0	1	0	2	Indicate error on Lane 2	Red or Yellow - if any error on lane 2	Green - if no error on lane 2
0	1	0		3	Indicate error on Lane 3	Red or Yellow - if any error on lane 3	Green - if no error on lane 3
1	0	0		4	Indicate error on Lane 4	Red or Yellow - if any error on lane 4	Green - if no error on lane 4

The following are the port/channel LED indications:

100G	Link/Activity	Solid white	The port is linked
		Blinking white	The port has link established and there is data activity
		Off	No link

40G	Link/Activity	Solid blue	The port is linked
		Blinking blue	The port has link established and there is data activity
		Off	No link
25G	Link/Activity	Solid amber	The port is linked
		Blinking amber	The port has link established and there is data activity
		Off	No link
10G	Link/Activity	Solid green	The port is linked
		Blinking green	The port has link established and there is data activity
		Off	No link
Fault	Fault detected	Solid red	Local fault detected
		Blinking red	Remote fault detected.

Remove and Replace Components

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

Remove a Switch from a Rack

These procedures assume that you have attached the switch to the rack as described in Attach Your Switch to a Rack or Cabinet on page 41.

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

Remove a Switch from a Four-Post Rack

Use the following instructions to remove a switch from a four-post rack.

1. Disconnect the device from its power source or sources.
2. Remove all cables and transceivers.
3. To remove a device from a four-post rack, do the following:
   a. Unsecure the device from the rack by unscrewing the thumb screws on the mounting ears.

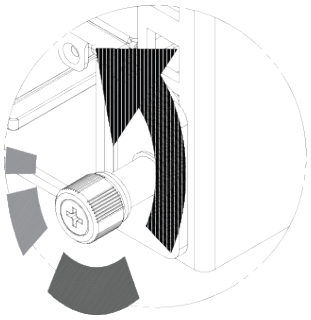


Figure 28: Unscrew Thumb Screws

   b. Fully extend the device on the rails and push the disconnect latch to release the device.

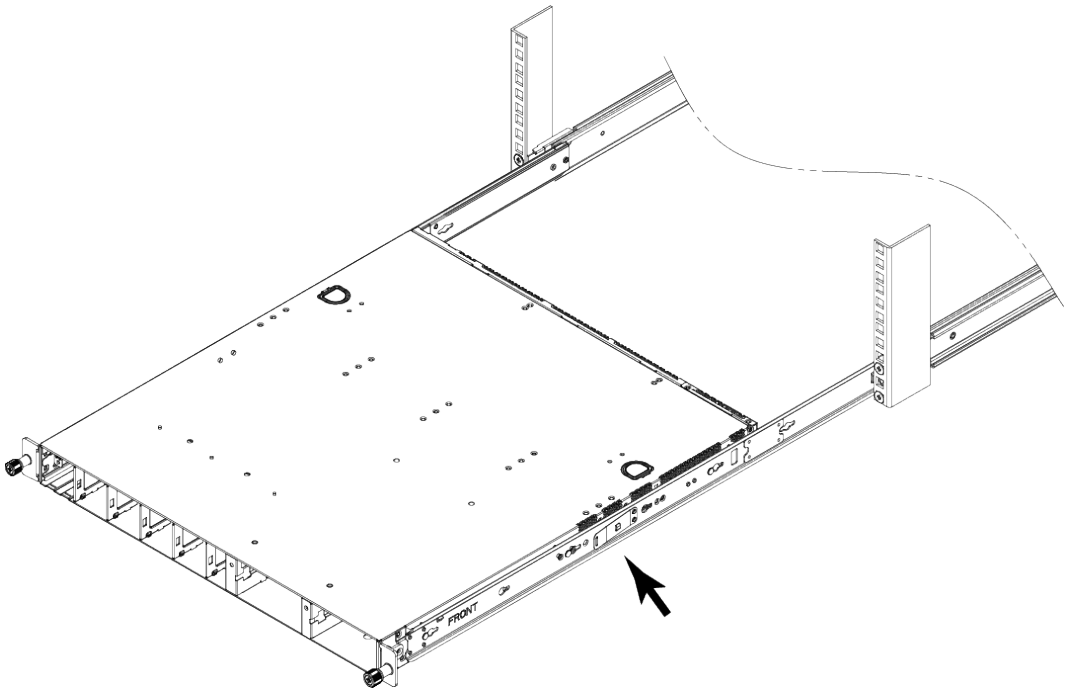


Figure 29: Disconnect latch for removal

c. Carefully slide the device 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 the next step.

d. On one of the slider assemblies, remove the outer rail (bracket) from the rack by removing the M5 screws.

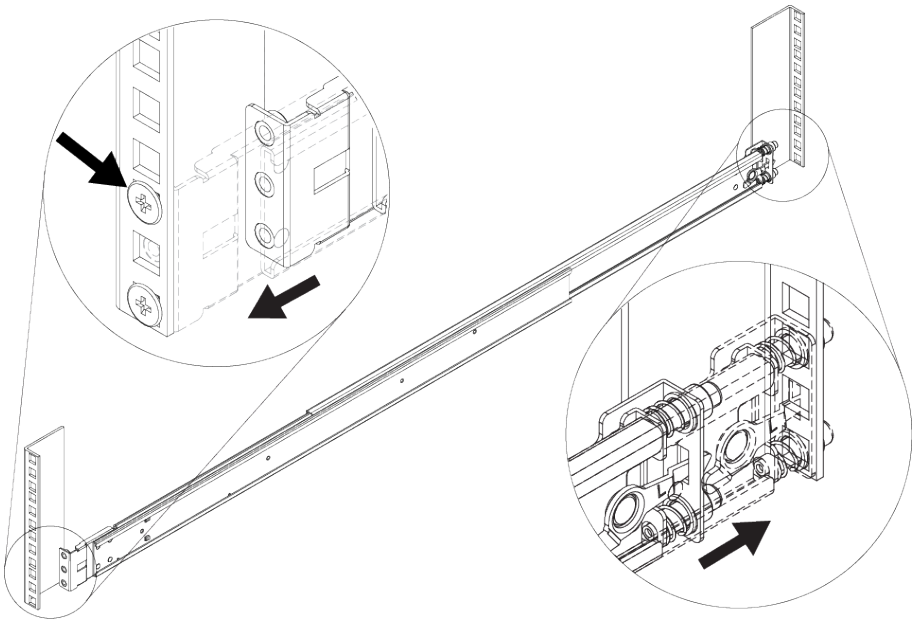


Figure 30: Removing the Outer Rail

e. Repeat step 3.d to remove the second slider assembly.

If you plan to use the device again later, store it with the mounting brackets attached.

Remove a Switch from a Two-Post Rack

Use the following instructions to remove a switch from a two-post rack.

1. Disconnect the device from its power source or sources, then disconnect the ground, if there is a ground.
2. Remove all cables and transceivers.
3. Unscrew the mounting brackets from the rack while carefully supporting the weight of the device.
4. Tilt the device so that the brackets are clear of the rack posts, and carefully lift it out of the rack.

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

If you plan to use the device again later, store it with the mounting brackets attached.

Replace Power Supplies

For switches with replaceable power supplies, refer to the following information to replace the power supplies. Power supplies are 1 + 1 redundant for 8820-40C switches. Power supplies are 2 + 2 redundant for 8820-80C switches.Installed power supplies can be AC, DC, or a combination of AC and DC In a switch with a redundant power configuration, you can replace one power supply without powering down the switch ("hot swapping"). Power supply slots are located on the rear panel of the switch.

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

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

Power Supply Airflow Direction Requirements

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

- A power supply with a **red** tab provides front-to-back airflow for power supply cooling.
- A power supply with a **blue** tab provides back-to-front airflow for power supply cooling.

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 slot.

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.

Replace a Power Supply

Two 1600 W AC power supply options, with front-to-back or back-to-front airflow, are available for the the Extreme 8820.

- 1600W AC power supply - front-to-back airflow (part no. XN-ACPWR-1600W-F)
- 1600W AC power supply - back-to-front airflow (part no. XN-ACPWR-1600W-R)

Two 1600 W DC power supply options, with front-to-back or back-to-front airflow, are available for the Extreme 8820.

- 1600W DC power supply - front-to-back airflow (part no. XN-DCPWR-1600W-F)
- 1600W DC power supply - back-to-front airflow (part no. XN-DCPWR-1600W-R)

Power supplies are 1 + 1 redundant for 8820-40C switches. Power supplies are 2 + 2 redundant for 8820-80C switches.

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

Remove a Power Supply

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

Use the following instructions to remove a power supply.

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

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

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

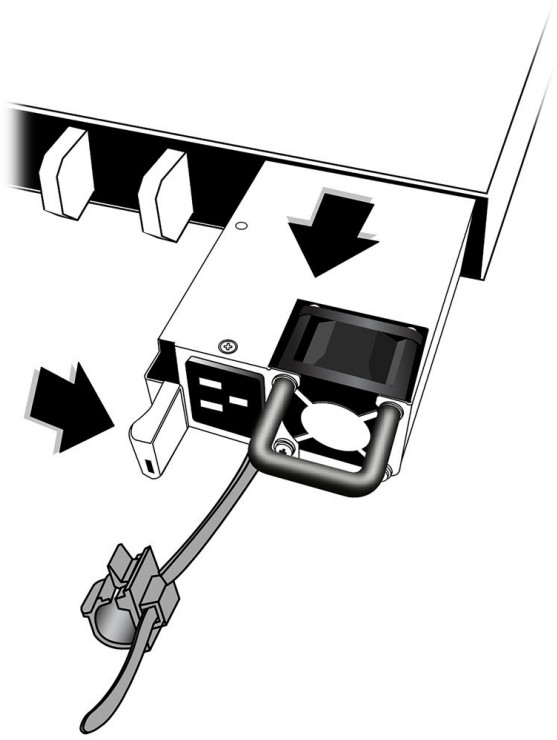


Figure 31: Remove a Power Supply

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

Replace or Install a Power Supply

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

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

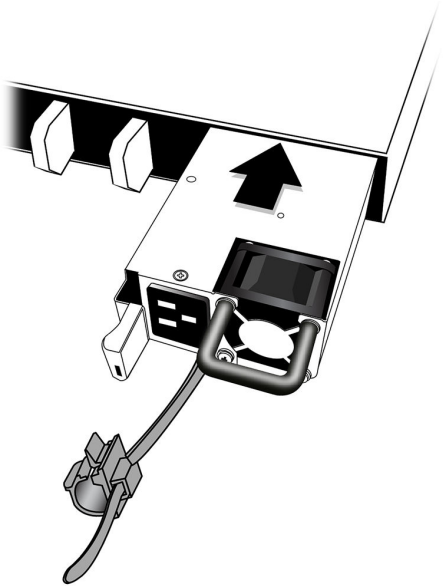


Figure 32: Install a Power Supply

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

   Do not slam the power supply into the switch.

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

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

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

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

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

Connect an AC Power Supply to an AC Power Outlet Using the Retainer

1. 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.

      The diagram below - Power Supply with Power Cord and Retainer Attached shows the power supply with the power cord and retainer in place.

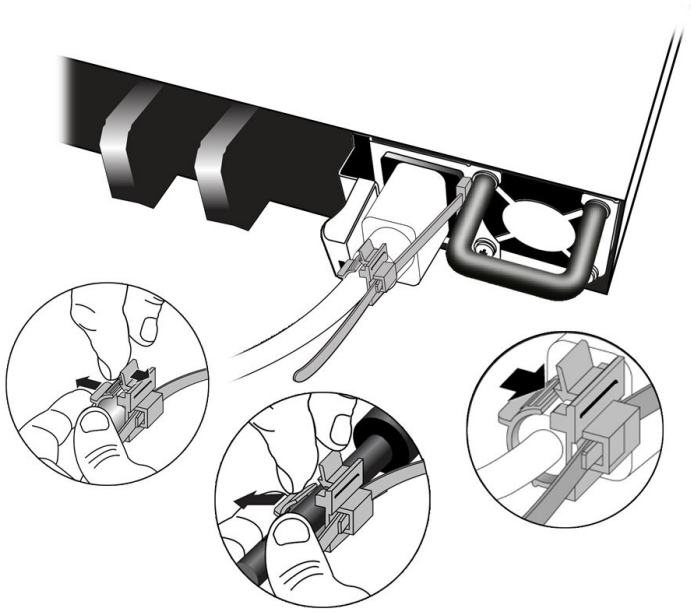


Figure 33: Power Supply with Power Cord and Retainer Attached

   d. Snap the clip firmly around the connector.
2. Connect the other end of the power cord to an AC power outlet.

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

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

Connect a DC Power Supply to a DC Power Source

After installing the DC power supply, connect it to the DC power source with either cable wires or a power supply cable.

Required Tools and Materials for Installing a DC Power Supply

You need the following tools and materials to connect a DC power supply to the source voltage.

- #6 AWG copper cable for grounding the power supply and connecting the power supply to the DC power source. (red and black grounding cables are included with the power supply):
  - 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
- #1 cross-head (Phillips) screwdriver
- ESD-preventive wrist strap
- Thermal protective gloves (for removal of a warm power supply)

Prepare the Cables for a DC Power Supply

You need two cable wires for each installed DC power supply: one DC power input cable, which is provided, and a grounding cable. As a best practice, each cable has differently colored insulation, as described in Required Tools and Materials for Installing a DC Power Supply.

To prepare the cable wires, follow these steps:

1. Strip 6 mm (0.25 inch) of insulation from one end of the cable wire, on each cable wire, if necessary.
2. Repeat step 1 for the other cable wire.

Connect the Ground Wire to a DC Power Supply

Follow these steps to connect the ground wire to a 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 metal end to an appropriate ground point on the rack.
3. Connect the ground wire to the grounding point on the power supply, which is labeled GND.

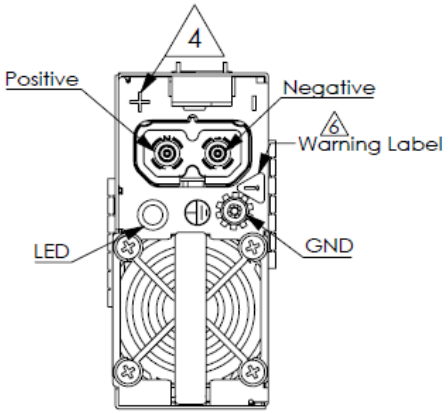


Figure 34: Front view of the DC power supply

Directly beneath the grounding point, you will see the international symbol for earth ground – ⏚ – on the body of the switch.

a. Attach ring lug to the 6 AWG ground wire.
b. Secure the ring lug with a 5mm hex socket 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.

Connect a DC Power Supply to the Source Voltage

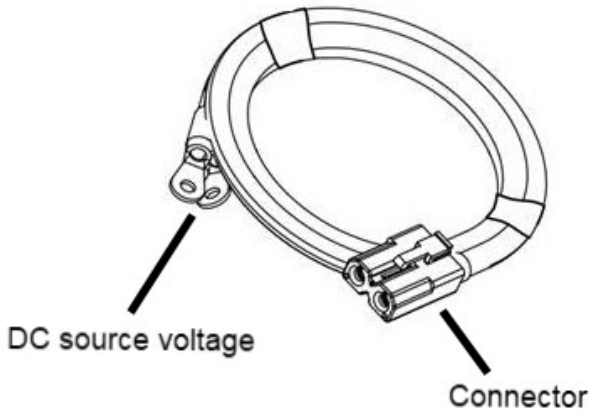
Warning
Always make sure that the DC circuit is de-energized before connecting or disconnecting the DC power cables on the DC power supply.

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

The DC power connection at your facility must be made by a qualified electrician.

Use these instructions to connect a power supply cable to the DC power supply:

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. Plug the connector that contains the negative (V+DC) and positive (V-DC) wires to the power supply.



4. 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. See Turn on the Switch on page 51 for more information.

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

Replace Fan Modules

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

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

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

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

Fan Airflow Direction Requirements

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

- A fan tray with a **blue** tab indicates front-to-back airflow for switch cooling. Use a fan module labeled **Air Out**.

- A fan tray with a **green** tab indicates back-to-front airflow for switch cooling. Use a fan module labeled **Air In**.

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

Identify the Airflow Direction

The power supply and fan assemblies are identified by the following airflow directions:

- **Intake power supply and fan assembly with an orange "I" label or without any label:** Pulls air from the nonport-side of the switch and exhausts it out the port side.

	◦ Nonport-side air intake ◦ Port-side air exhaust ◦ Back-to-front (nonport-side to port-side) airflow ◦ Part numbers ending with **-R**

- **Exhaust power supply and fan assembly with a green "E" label:** Pulls air from the port side of the switch and exhausts it out the nonport-side.

	◦ Nonport-side air exhaust ◦ Port-side air intake ◦ Front-to-back (port-side to nonport-side) airflow ◦ Part numbers ending with -F

- You can check the top view of the switch to ensure proper groove alignment:

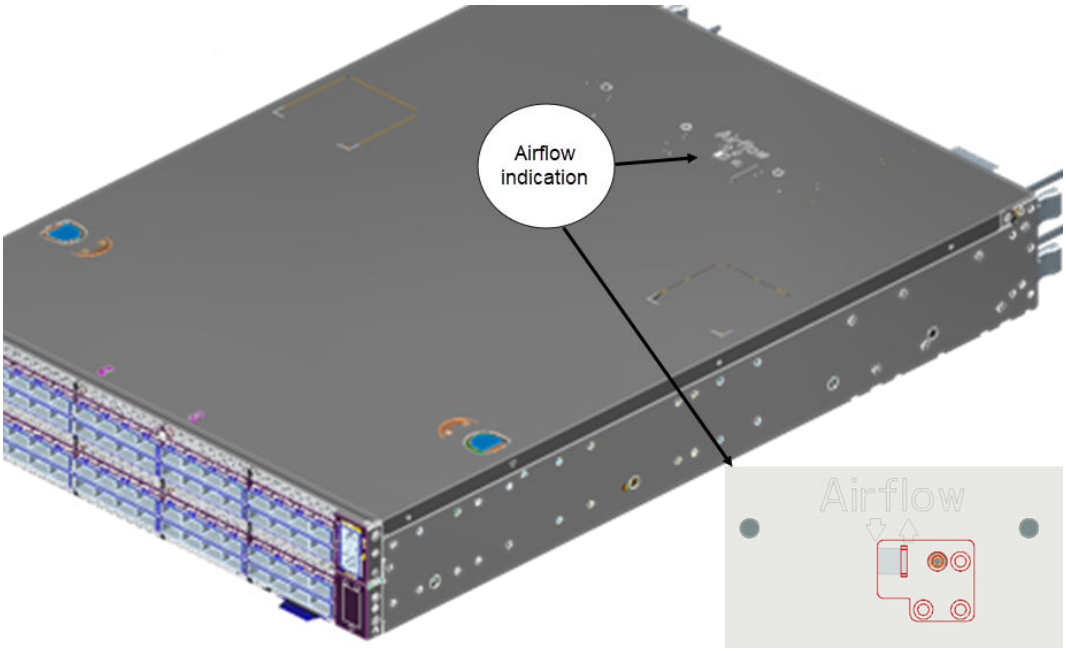


Figure 35: Airflow groove alignment (front-to-back shown)

Replace a Fan Module

Two fan module options are available for the Extreme 8820-40C switches:

- Part number XN-FAN-003-F provides front-to-back airflow for 8820-40C switch cooling.
- Part number XN-FAN-003-R provides back-to-front airflow for 8820-40C switch cooling.

Two fan module options are available for the Extreme 8820-80C switches:

- Part number XN-FAN-004-F provides front-to-back airflow for 8820-80C switch cooling.
- Part number XN-FAN-004-R provides back-to-front airflow for 8820-80C switch cooling.

The Extreme 8820-40C models can include up to six redundant, hot-swappable fan modules (5+ 1 redundancy). The Extreme 8820-80C models can include up to four redundant, hot-swappable fan modules (3+ 1 redundancy).

Note
The operating system software cannot display the airflow direction.

Remove a Fan Module

Use the following instructions to remove a fan module.

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 disengage and the fan stops.

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

Install a Fan Module

Use the following instructions to install a fan module.

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

   Fan modules labeled **Air In** provide back-to-front airflow.

   Fan modules labeled **Air Out** provide front-to-back airflow.
2. Carefully slide the replacement fan module into the switch.

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

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

Change Airflow Direction

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

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

1. Remove the PSUs and fan modules by removing the two captive retaining screws and sliding all components out of the switch.

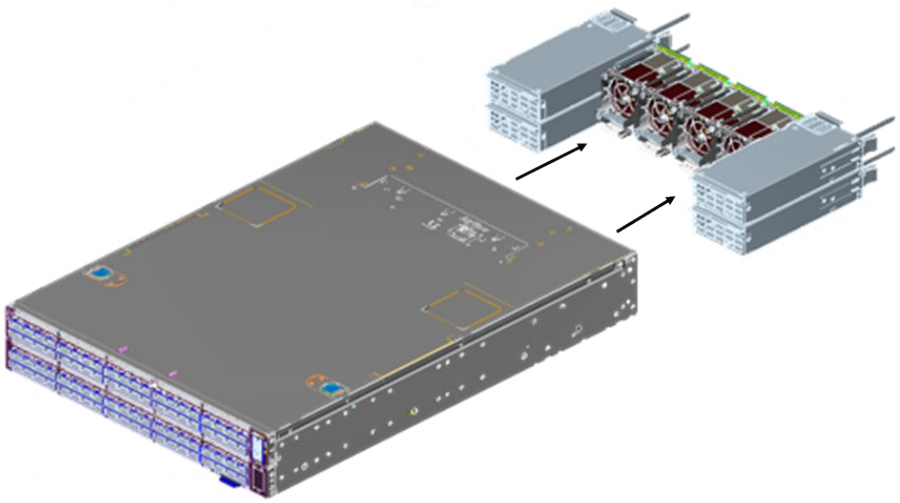


Figure 36: Remove PSUs and fan modules

2. Use a Phillips #1 screwdriver to loosen the chassis screw.

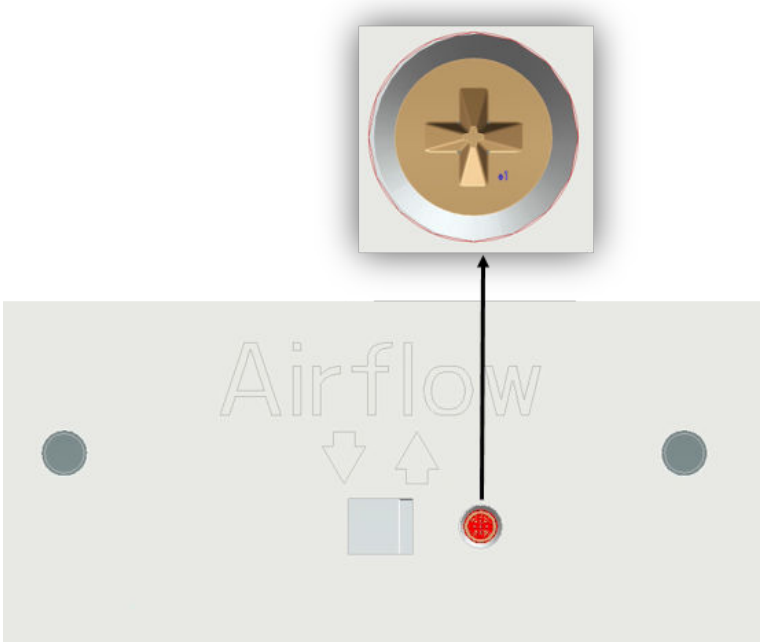


Figure 37: Chassis switch screw front-to-back airflow

3. Use a flathead screwdriver to change the chassis switch. The following figure is an example of changing front-to-back airflow to back-to-front airflow.

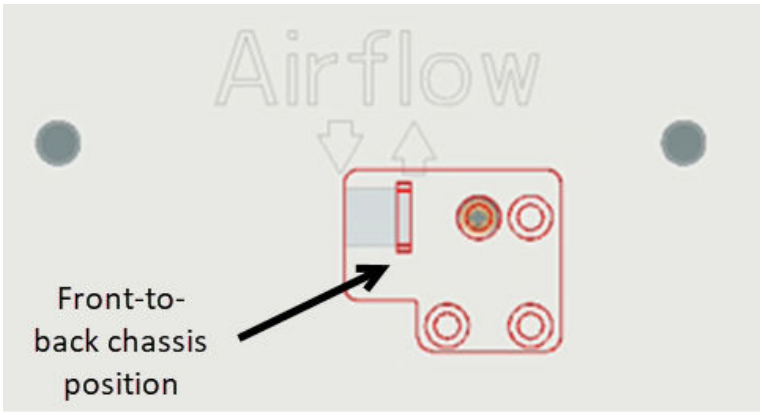


Figure 38: Front-to-back airflow chassis position

Figure 39: Back-to-front airflow chassis position

4. Use a Phillips #1 screwdriver to tighten the chassis screw.

Figure 40: Chassis screw back-to-front position

5. Carefully slide the PSUs and fan modules back into the switch.

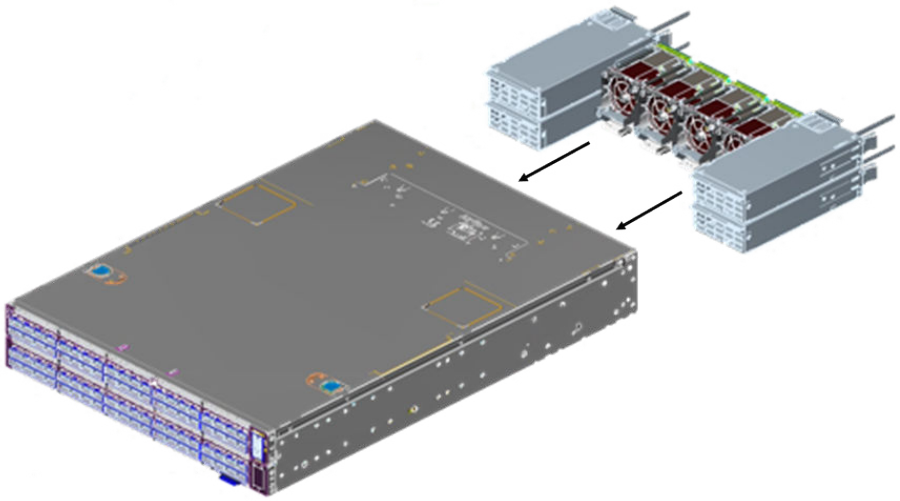
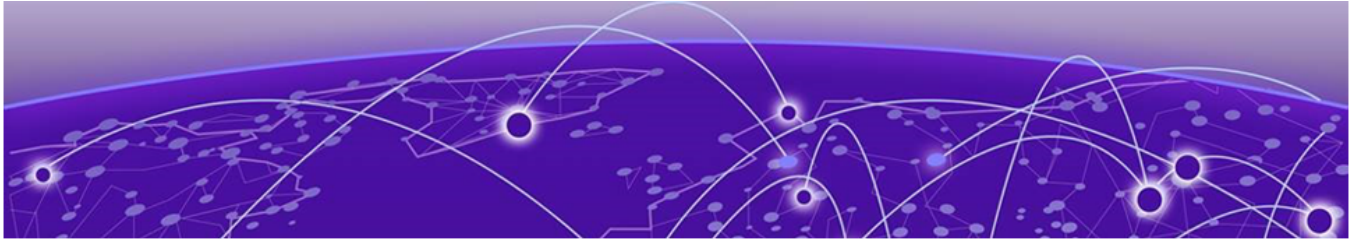


Figure 41: Remove PSUs and fan modules

6. Tighten the two captive retaining screws to secure the components.



Technical Specifications

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

Extreme 8820 Technical Specifications

Table 13 contains external interfaces and weights and dimensions information for Extreme 8820 switches.

Table 13: External Interfaces

Item	Extreme 8820-80C	Extreme 8820-40C
Maximum 100 GbE/40 GbE ports	80	40
Maximum 10/25 GbE	144 ports in breakout mode (36x4)	72 ports in breakout mode (18x4)
Switch fabric capacity (data rate, full duplex)	8.0Tbps in each direction (front panel ports, 80x100Gbps)	4.0 Tbps in each direction (front panel ports, 40x100Gbps)
Forwarding capacity (data rate, full duplex)	4000Mpps (packet size=284B)	2000Mpps (packet size=284B)
Airflow	Front to back or back to front (orderable option)	Front to back or back to front (orderable option)
Fan module slots	4 (3+ 1 redundancy)	6 (5+ 1 redundancy)
Maximum AC power supply rating	1600 W	1600 W
Power Supplies Modular	1600W AC/DC power supply (up to four PSUs)	1600W AC/DC power supply (up to two PSUs)

Table 13: External Interfaces (continued)

Item	Extreme 8820-80C	Extreme 8820-40C
Height	3.41in / 8.66 cm	1.7in / 4.31 cm
Width	17.72in / 45.00 cm	17.72in / 45.00 cm
Depth chassis only without cable management or fan handles	25.2in / 64.00 cm	25.2in / 64.00 cm
Weight Chassis	4PS, 4 fans: 58.46 lb / 26.52 kg	2PS, 6 fans: 29.98 lb / 13.60 kg
Weight Chassis	4PS, 4 fans, rack mount kit (4 post): 64.99 lb / 29.48 kg	2PS, 6 fans, rack mount kit (4 post): 36.24 lb / 16.44 kg
Weight Empty chassis (no PS, no fans)	45.46 lb, 20.62 kg Fan: 0.71 lb, 0.32 kg PS: 2.54 lb, 1.15 kg	23.28 lb, 10.56 kg Fan: 0.27 lb, 0.13 kg PS: 2.54 lb, 1.15 kg
Port type	QSFP28 Port Configs: 80x100GbE, 80x40GbE, 144x25GbE, 144x10GbE	QSFP28 Port Configs: 40x100GbE, 40x40GbE, 72x25GbE, 72x10GbE
Packet buffers per switch	16 GB	8 GB
Operating Conditions	Operating temperature and operating altitude for airflow front to back: 0°C (32°F) to 40°C (104°F) up to 1800m (6000 ft)	
	Operating temperature and operating altitude for airflow back to front: 0°C (32°F) to 25°C (77°F) up to 1800 m (6000 ft)	
	Storage temperature: -40°C to 70°C (-40°F to 158°F)	
	Operating Relative Humidity: 5% to 95% (non-condensing)	

Table 14: Weights and Dimensions of Accessories

Accessory	Weight	Dimensions
1600 W AC PSU	1.15 kg (2.54 lb)	Height: 8.64 cm (3.4 in.) Width: 4.01 cm (1.58 in.) Length: 24 cm (9.45 in.)
1600 W DC PSU		Height: 8.64 cm (3.4 in.) Width: 4.01 cm (1.58 in.) Length: 25.5 cm (10.04 in.)
XN-FAN-003-F: Fan unit, front-to-back or XN-FAN-003-R: Fan Unit back-to-front	0.13 kg (0.27 lb)	Height: 4.01 cm (1.58 in.) Width: 4.01 cm (1.58 in.) Length: 13.99 cm (5.51 in.)

Table 14: Weights and Dimensions of Accessories (continued)

Accessory	Weight	Dimensions
XN-FAN-004-F: Fan unit, front-to-back or XN-FAN-004-R: Fan Unit back-to-front	0.32 kg (0.71 lb)	Height: 5.99 cm (2.36 in.) Width: 4.01 cm (2.36 in.) Length: 15.49 cm (6.1 in.)
XN-4P-RKMT302 - Four-post rack mount kit for Extreme 8820-40C (included with switch)	2.66 kg (5.87 lb)	Height: 5.00 cm (1.97 in) Width: 7.01 cm (2.76 in) Length: 72.00 cm (28.35 in)
XN-4P-RKMT301 - Four-post rack mount kit for Extreme 8820-80C (included with switch)	2.9 kg (6.39 lb)	
XN-2P-RKMT299 - Two-post rack mount kit for Extreme 8820-40C (ordered separately)	0.45 kg (0.99 lb)	Height: 4.2 cm (1.65 in) Width: 2.4 cm (0.93 in) Length: 12.5 cm (4.92 in)
XN-2P-RKMT300 - Two-post rack mount kit for Extreme 8820-80C (ordered separately)	0.70 kg (1.54 lb)	Height: 8.99 cm (3.54 in) Width: 10.16 cm (4.00 in) Length: 13.00 cm (5.12 in)

Console Cables

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

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

Fan and Acoustic Noise

Table 15 includes acoustic specifications for Extreme 8520 switches under maximum operating conditions. Refer to the *Extreme 8820 Data Sheet* for up-to-date information

Table 15: Fan and Acoustic Noise

Sound Pressure	Extreme 8820-40C (F-B)	Extreme 8820-40C (B-F)	Extreme 8820-80C (F-B)	Extreme 8820-80C (B-F)
Front	57.3 dBA, re: 20 µPa	61.7dBA, re: 20 µPa	61.3 dBA, re: 20 µPa	69 dBA, re: 20 µPa
Rear	60.2 dBA, re: 20 µPa	65.1 dBA, re: 20 µPa	65.2 dBA, re: 20 µPa	70.8 dBA, re: 20 µPa

Table 15: Fan and Acoustic Noise (continued)

Sound Pressure	Extreme 8820-40C (F-B)	Extreme 8820-40C (B-F)	Extreme 8820-80C (F-B)	Extreme 8820-80C (B-F)
Right	50.5 dBA, re: 20 µPa	54.9 dBA, re: 20 µPa	55.5 dBA, re: 20 µPa	62.9 dBA, re: 20 µPa
Left	51.9 dBA, re: 20 µPa	55.9 dBA, re: 20 µPa	55.9 dBA, re: 20 µPa	64 dBA, re: 20 µPa
Average	55 dBA, re: 20 µPa	59.4 dBA, re: 20 µPa	59.5 dBA, re: 20 µPa	66.7 dBA, re: 20 µPa

Power Specifications

This topic describes power supply specifications, power consumption, and heat dissipation. Refer to the *Extreme 8820 Data Sheet* for up-to-date information.

Extreme 8820	**1600 W AC power supply:** Part # XN-ACPWR-1600W-F (front-to-back): AC Input: 100-120/200-240 VAC, 50/60 Hz Part # XN-ACPWR-1600W-R (back-to-front): AC Input: 200-240 VAC, 50/60 Hz 7A max. for PSU FSG059 for each PSU for Extreme 8820-40C 4A max. for PSU FSG059 and FSE023 for each PSU for Extreme 8820-40C; for Extreme 8820-80C, min. 2 PSUs provided. PSU Input Socket: IEC 320 C14 Power cord input plug: IEC 320 C13
	1600 W DC power supply: Part # XN-DCPWR-1600W-F (front-to-back) Part # XN-DCPWR-1600W-R (back-to-front) DC Input: +/- 48VDC 15A Max (for PSU FSK010) for each PSU for Extreme 8820-40C +/- 48VDC 15A Max (for PSU FSK010) for each PSU, min. x2 for Extreme 8820-80C

Power and Heat Dissipation

Extreme 8820-80C Maximum Heat Dissipation (BTU/hr) (Fans high, all ports 100% traffic, 4 PSU)	Extreme 8820-80C Maximum Power Dissipation (Watts) (Fans high, all ports 100% traffic, 4 PSU)
6592.26 BTU/hr	1932

Extreme 8820-40C Maximum Heat Dissipation (BTU/hr) (Fans high, all ports 100% traffic, 2 PSU)	Extreme 8820-40C Maximum Power Dissipation (Watts) (Fans high, all ports 100% traffic, 2 PSU)
3524.74 BTU/hr	1033

Mean Time Between Failures (MTBF)

Table 16 includes mean time between failures (MTBF) information for Extreme 8820 switches.

Table 16: Mean Time Between Failures

Device Model	Conditions	Mean Time Between Failures
8820-40C	• front-to-back airflow • 2 power supplies AC/DC (1+1 redundancy) • 6 fans (supporting one fan fail)	225,486 hrs @ 25°C
8820-40C	• back-to-front airflow • 2 power supplies AC/DC (1+1 redundancy) • 6 fans (supporting one fan fail)	198,718 hrs @ 25°C

Table 16: Mean Time Between Failures (continued)

Device Model	Conditions	Mean Time Between Failures
8820-80C	• front-to-back airflow • 4 power supplies AC/DC (2+2 redundancy) • 4 fans (supporting one fan fail)	153,251 hrs @ 25°C
8820-80C	• back-to-front airflow • 4 power supplies AC/DC (2+2 redundancy) • 4 fans (supporting one fan fail)	129,304 hrs @ 25°C

CPU, Memory

Table 17 includes CPU and memory specifications for the switch.

Table 17: CPU and Memory

Both models
Intel(R) Atom(TM) CPU C3758 @ 2.20GHzU
2 x 16 Gb DDR4 SO-DIMM memory
2 x 128 Gb SSD non-volatile storage for SLXOS image and configuration storage
16MB BIOS SPI Flash Memory with 16MB redundancy
8 GB Deep Buffer for each BCM88690 MAC ASIC

1600 W Power Supply Technical Specifications

Two 1600 W AC power supply options, with front-to-back or back-to-front airflow, are available for the the Extreme 8820.

- 1600W AC power supply - front-to-back airflow (part no. XN-ACPWR-1600W-F)
- 1600W AC power supply - back-to-front airflow (part no. XN-ACPWR-1600W-R)

Two 1600 W DC power supply options, with front-to-back or back-to-front airflow, are available for the Extreme 8820.

- 1600W DC power supply - front-to-back airflow (part no. XN-DCPWR-1600W-F)
- 1600W DC power supply - back-to-front airflow (part no. XN-DCPWR-1600W-R)

The Extreme 8820-40C switch supports two power supply modules (1 + 1 redundancy). The Extreme 8820-80C switch supports four power supply modules (2 + 2 redundancy).

Note
If the Extreme 8820-80C is configured with two AC power supplies and two DC power supplies, and one AC power supply faults, neither DC power supply is activated. If the one AC power supply does not provide enough power for the switch, the switch shuts down. Manual intervention is required.

The following table describes the power supply behavior based on fault conditions, when two AC and two DC power supplies are installed.

Installed PSUs	Default PSU status	1 AC PSU fails	2 AC PSUs fail	1 DC PSU fails	1 AC and 1 DC PSU fails
2 AC and 2 DC	2 AC on, 2 DC off	1 AC on, 2 DC off*	2 DC on	2 AC on	1 AC on, 1 DC off

Table 18: Power Specifications (AC Power Supplies)

Voltage input range	90 to 264 V ~
Nominal input ratings	For FSG059: AC 100-120V~, 50/60Hz, 13A max.; 200-240V ~, 50/60Hz, 10A max. For FSE023: 200-240V~, 50/60Hz, 10A max.
Nominal input current at full loads	10 A at 90 V ~ (low-line) 3.7 A at 230 V ~ (high-line)
Line frequency range	47 to 63 Hz
Maximum inrush current	35 A
Output	For FSG059: +12V/133A (for input 200-240VAC or 240VDC), +12V/83A (for input 100-120VAC), +12Vsb/2.5A. Total output power not to exceed 1600W (200-240VAC or 240Vdc). Total output power not to exceed 1000W (100-120VAC). For FSG023: +12V/133A, +12Vsb/2.5A. Total output power not to exceed 1600W.
Power supply input socket	IEC 320 C14
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 86.
Power supply cord gauge	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 19: Power Specifications (DC Power Supplies)

Nominal input	-48 to -60 VDC
DC Voltage input range	+/-39VDC to +/-72VDC, 50A max.
Inrush Current	21 A peak
Maximum wire size	14 AWG (1.5 mm2 copper stranded).
DC Output	+12.2V/131A, +12Vsb/2.5A
Power (W)	1600 W

Table 20: Environmental Specifications (AC and DC Power Supplies)

Operating temperature (front-to-back airflow)	0°C to 40°C (normal operation)
Operating temperature (back-to-front airflow)	0°C to 25°C (normal operation)
Storage temperature	-40°C to 70°C
Operating humidity	5% to 95% relative humidity, non-condensing
Operational shock	30 m/s^2 (3 G)

Standards

Table 21: Safety Standards

North American Safety of ITE	CAN/CSA C22.2 NO. 60950-1-01, CAN/CSA C22.2 NO. 62368-1-14 CAN/CSA C22.2 NO. 60950-1-01, CAN/CSA C22.2 NO. 62368-1-14 UL 60950-1, UL 62368-1
European Safety of ITE	EN 60950-1 EN 62368-1 EN 60825-1 Class 1 (Lasers Safety) 2014/35/EU Low Voltage Directive ETS 300 132-1 Equipment Requirements for AC Power Equipment Derived from DC Sources ETS 300 132-2 Equipment Requirements for DC Powered Equipment ETS 300 253 Facility Requirements ETS 300 253 Facility Requirements
International Safety of ITE	CB Report & Certificate per IEC 60950-1 + National Differences CB Report & Certificate IEC 62368-1 AS/NZS 60950-1 (Australia /New Zealand) CNS 14336-1 (Taiwan) GB 4943.1 (China)

Table 22: EMI/EMC Standards

North America EMC for ITE	FCC 47 CFR part 15 Class A (USA) ICES-003 Class A (Canada)
European EMC standards	EN 55032 Class A EN 55011 EN 55035 EN 61000-3-2 (Harmonics) EN 61000-3-3 (Flicker) EN 300 386 (EMC Telecommunications) 2014/30/EU EMC Directive

Table 22: EMI/EMC Standards (continued)

International EMC certifications	CISPER 32 Class A (International Emissions) AS/NZS CISPER 32 CISPER 24 Class A (International Immunity) IEC 61000-4-2/EN 61000-4-2 Electrostatic Discharge, 8kV Contact, 16kV Air, Criteria B IEC 61000-4-3/EN 61000-4-3 Radiated Immunity 10V/m, Criteria B IEC 61000-4-4/EN 61000 -4-4 Transient Burst, 2kV, Criteria B IEC 61000-4-5/EN 61000-4-5 Surge, 1kV L-L, 2kV L-G, Level 3 Criteria B IEC 61000-4-6/EN 61000-4-6 Conducted Immunity, 0.15-80 Mhz, 10Vrms, 80%AM (1kHz) Criteria A IEC/EN 61000-4-11 Power Dips & Interruptions, >30%, 25 periods, Criteria C CNS 13438 (Taiwan) GB/T9254-2008 (China)
Country-specific	VCCI Class A (Japan Emissions) ACMA RCM (Australia Emissions) CQC Mark (China) KCC Mark, EMC Approval (Korea) BSMI (Taiwan) ANATEL (Brazil) NoM (Mexico) EAC mark (Russia, Belarus, Kazakhstan, Armenia, Kyrgyzstan) NRCS (South Africa) TEC mark (India)

Table 23: 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 24: IEEE Media Access Standards

802.3-2005 CSMA/CD Access Method and Physical Layer Specifications
802.3ab 1000BASE-T
802.3ae 10 Gigabit Ethernet
802.3u 100BASE-TX, 100BASE-T4, 100BASE-FX Fast Ethernet at 100Mbps with Auto-Negotiation
802.3x Flow Control
802.3z 1000BASE-X Gigabit Ethernet over fiber optic at 1 Gbps
802.3ad Link Aggregation
802.1q Virtual Bridged LANs

Table 24: IEEE Media Access Standards (continued)

802.1d MAC Bridges 802.1w Rapid STP 802.1s Multiple Spanning Trees 802.1ag Connectivity Fault Management(CFM) 802.3.bj 100 Gigabit Ethernet 802.1ab Link Layer Discovery Protocol 802.1x Port-Based Network Access Control 802.3ah Ethernet in the First Mile Link OAM3 ITU-T G.8013/Y.1731 OAM mechanisms for Ethernet G.8032

Environmental Standards

Operating conditions	Operating temperature and operating altitude for airflow front to back: 0°C to 40°C (32°F to 104°F) / 6.000 ft (1,800m) Operating temperature and operating altitude for airflow back to front: 0°C to 25°C (32°F to 77°F) / 6.000 ft (1,800m) Humidity: 5% to 95%, at 40°C (104°F), non-condensing Operational shock (half sine): 30G, Duration=11 ms. (Half sine), 3 axis. Operational random vibration: 3-500Hz, 1.5Grms, 120mins, z-axis.
Storage & transportation conditions (packaged)	Storage temperature: -40°C to 70°C (-40°F to158°F) Storage and transportation humidity: 95% maximum relative humidity, non-condensing Storage altitude: 15,000 ft (4,500 m) maximum Packaged shock (half sine): 3 axes, 100 shocks each axis (+/-) <50 kg: Half-Sine, 180 m/s2 (18g), 6ms >50kg: Half-Sine, 100 m/s2 (10g), 11ms Packaged random vibration: 5-20 Hz @ .01 g2/Hz (PSD). 20-200 Hz @ -3 (dB/Oct (PSD). 30 minutes per each axis.

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

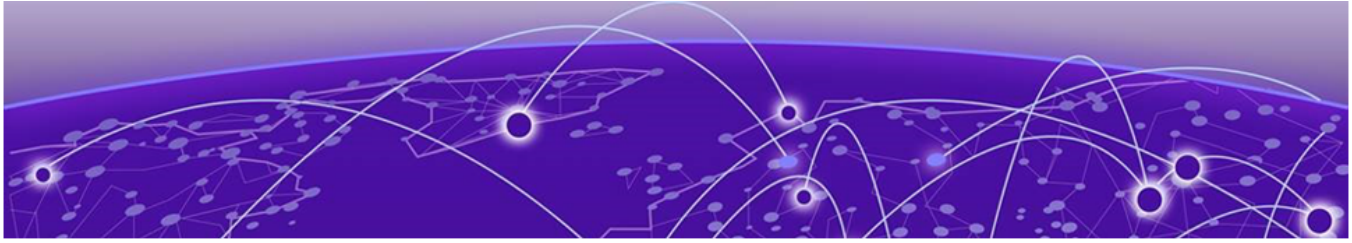
An AC power cord is not included with the AC power supply.

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

- The power cord must be agency-certified for the country of use.
- The power cord must have an appropriate AC connector for connection to the switch or power supply. See the power supply documentation for the appropriate power cord.
- The power cord must have an appropriately rated and approved wall plug applicable to the country of installation.
- For cords up to 6 feet (2 m) long, the wire size must be 18 AWG (.75 mm^2) minimum; over 6 feet, the minimum wire size is 16 AWG (1.0 mm^2).

  The power cords for switches that use either the 1100 W or 715 W power supplies are keyed with a “notch” to ensure the proper orientation when plugged in. These cords are of 3x14 AWG.

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



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