



Extreme 8730 Installation Guide

Setup, Configuration, and Best Practices

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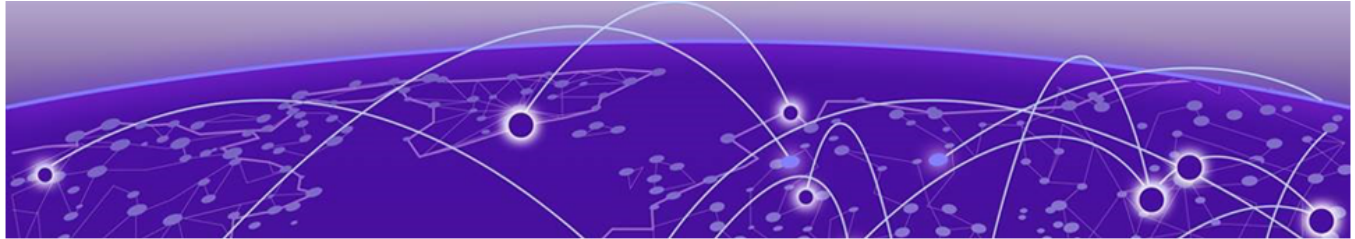
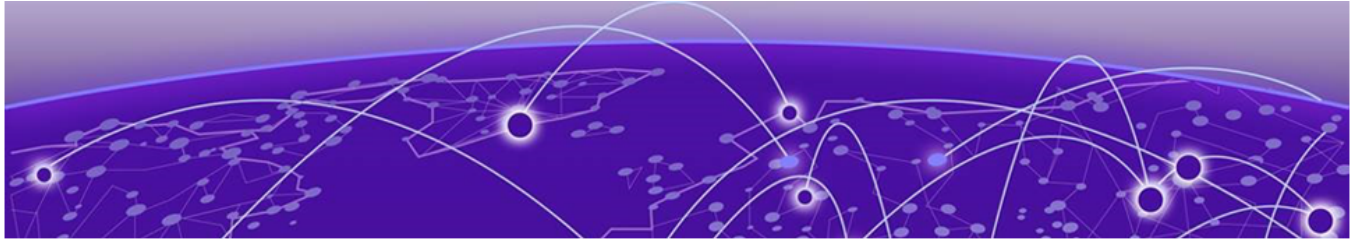


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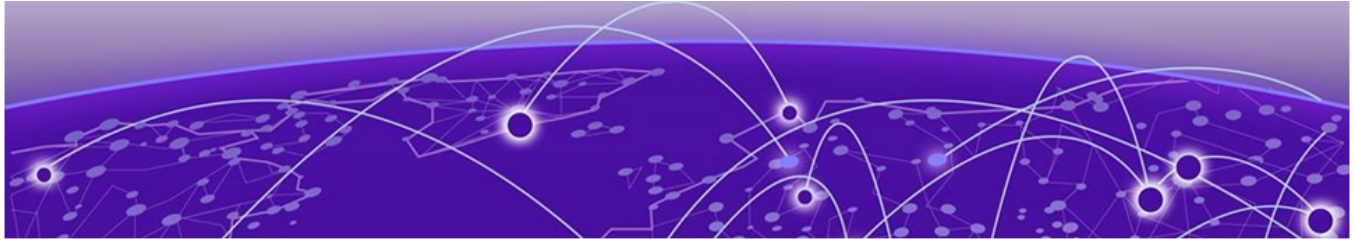
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Abstract

This installation guide for the Extreme 8730 Series covers setup and configuration procedures for data center equipment featuring 32 x 400Gbps QSFP-DD ports with QSFP-28 backwards compatibility, Intel Snow Ridge P5362 24-core processor, dual 16GB DDR4 ECC modules, and Extreme ONE OS cloud-native operating system. Switch variants include base 8730-32D with unpopulated slots, AC/DC models with dual 1600W power supplies (100-240VAC or -48 to -60VDC), and seven hot-swappable fan modules supporting front-to-back or back-to-front airflow configurations. Installation procedures encompass four-post rack mounting using a sliding rail kit, power connections via IEC320 connectors or terminal blocks, dual 1/10Gbps SFP+ management ports (MGMT1 CPU-direct, MGMT2 CPU/BMC-shared), and Forward Error Correction configuration supporting Auto Detect, RS-FEC, FC-FEC, and Disabled modes with mandatory endpoint matching. System specifications include 80MB shared packet buffers, 2x120G NVMe SSD storage, power consumption from 501W idle to 1371.95W maximum, five-LED status monitoring (Power/System/PSU/Fan/Security), QSFP-DD sub-channel selector for 8-channel breakout, environmental operation at 0°C to 40°C with 5-95% relative humidity, and regulatory compliance including Class 1 laser safety, FCC CFR 47 Part 15 Class A EMI certification, and RJ45 console connectivity at 115200 baud.



Introduction to the Extreme 8730 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 ONE OS SR Deployment Guide* and the *Extreme ONE OS Command Reference* for your version of the Extreme ONE OS operating system for information about configuring Extreme Networks switches

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.



Note

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

Text Conventions

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

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

Table 1: Notes and warnings

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

Table 2: Text

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

Table 3: Command syntax

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

Table 3: Command syntax (continued)

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

Documentation and Training

Find Extreme Networks product information at the following locations:

[Current Product Documentation](#)

[Release Notes](#)

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

[Extreme Optics Compatibility](#)

[Other Resources](#) such as articles, white papers, and case studies

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

[Extreme Portal](#)

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

The Hub

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

Call GTAC

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

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

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

Subscribe to Product Announcements

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

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

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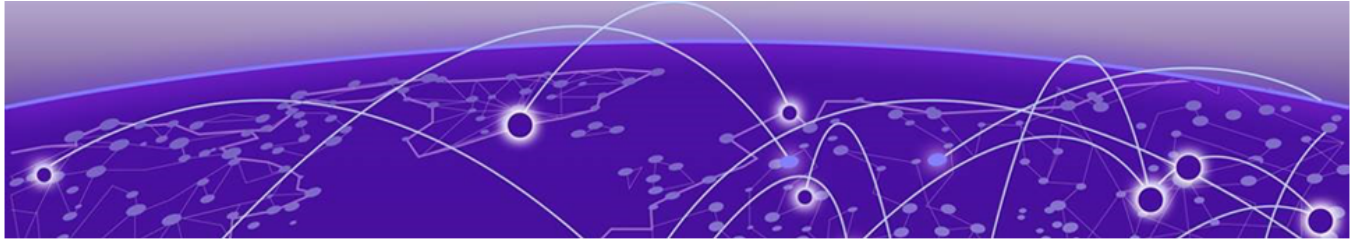
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- Content errors, or confusing or conflicting information.

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

To send feedback, email us at Product-Documentation@extremenetworks.com.

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



Extreme 8730 Overview

[8730 Series Switch Features](#) on page 13

The Extreme 8730 provides secure, scalable, high performance switching with lean power efficiency. The Extreme 8730 provides 400Gb QSFP-DD interfaces that are backwards compatible to QSFP-28.

Management

You can connect to the switch using the RJ45 serial console port or the Ethernet management ports 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 46.



Note

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

After connecting to your switch, it can be flexibly configured and operated through the CLI for manual configuration. For more information about switch configuration and operation methods, see [Manage Your Switch](#).

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. Fan modules are ordered separately for the base Extreme 8730 switch. Fans are included with other models. The fans are N+1 redundant.

For more information about the fan modules used in the switch, see [Fan Modules for Use with Your Switch](#) on page 19.

Power Supplies

Each switch supports up to two 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 the base Extreme 8730 switch. Power supplies are included with other models. Power supplies are N+1 redundant.

For more information about the power supplies used in the switch, see [Power Supplies for Use with Your Switch](#) on page 21.

Operating Temperatures

All Extreme 8730 switch models support an operating range from 0°C (32°F) to 40°C (104°F) up to 2,000 m (6,000 ft), with front-to-back and back-to-front airflow.

Feature Licensing

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

8730 Series Switch Features

The Extreme 8730 switch includes the following models:

8730-32D

The 8730-32D base switch includes two unpopulated modular power supply slots and seven unpopulated fan slots. Fan modules and power supply modules must be ordered separately.

8730-32D-AC-F

The 8730-32D-AC-F switch includes dual modular AC power supplies and seven fan modules. Airflow for both the fan modules and the powers supply modules is front-to-back.

8730-32D-AC-R

The 8730-32D-AC-R switch includes dual modular AC power supplies and seven fan modules. Airflow for both the fan modules and the powers supply modules is back-to-front.

8730-32D-DC-F

The 8730-32D-DC-F switch includes dual modular DC power supplies and seven fan modules. Airflow for both the fan modules and the powers supply modules is front-to-back.

8730-32D-DC-R

The 8730-32D-DC-R switch includes dual modular DC power supplies and seven fan modules. Airflow for both the fan modules and the powers supply modules is back-to-front.

The front panel of the switch includes:

- 1 = System LEDs
- 2 = RJ-45 Serial console port
- 3 = USB Type A port
- 4 = HD-BNC connector for Time synchronization, 1PPS and 10MHz
- 5 = Mode button

- 6 = Global Navigation Satellite System for GPS signal
- 7 = 32 x 40/100/400Gbps QSFP-DD ports (backwards compatible to QSFP-28)
- 8 = 2 x 1/10Gbps SFP+ out-of-band (OOB) management ports
- 9 = Advanced services port for the processor to offload to external appliance
- 10 = Time of Day (TOD), 1PPS signal inputs

There are two OOB management ports:

- MGMT2 - shared by CPU and BMC (secondary)
- MGMT1 - Direct to CPU only (primary)



Figure 1: 8730-32D Front Panel

The rear panel of the switch includes:

- 1 = 7 x Fan modules
- 2 = 2 x Modular power supplies
- 3 = Grounding lug

Airflow is front-to-back if the power supplies have red tabs and the fans are marked **Air Out**. Airflow is back-to-front if the power supplies have blue tabs and the fans are marked **Air In**.

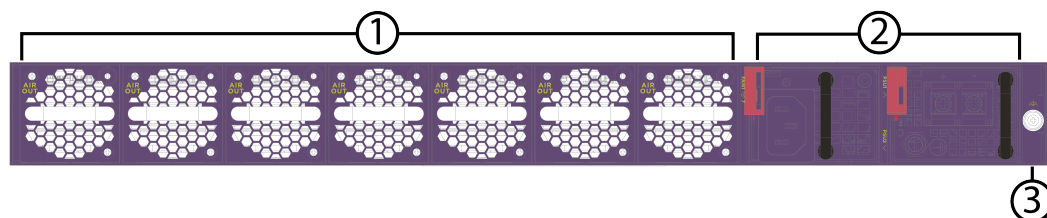


Figure 2: 8730-32D Rear Panel with Front-To-Back Airflow

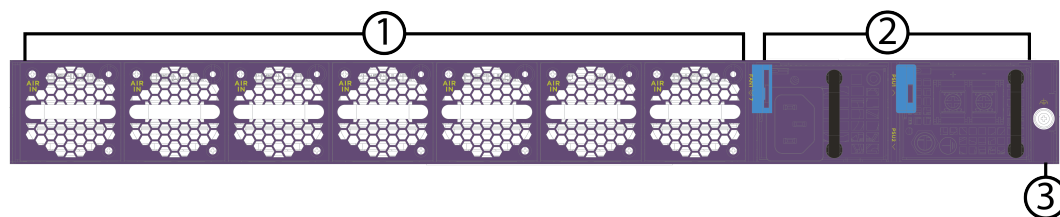
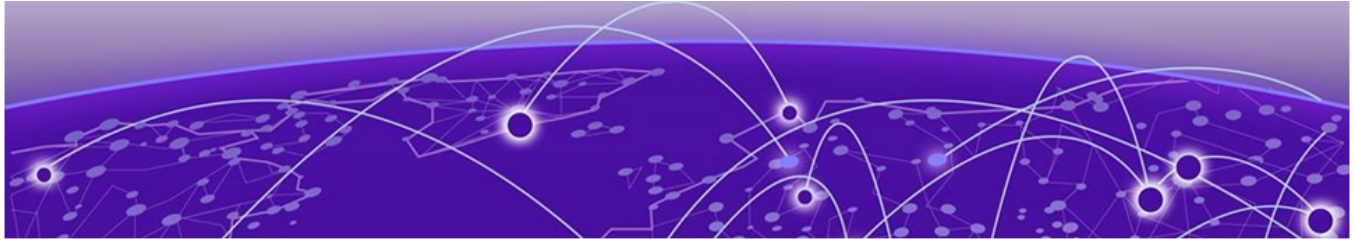


Figure 3: 8730-32D Rear Panel with Back-To-Front Airflow



Manage Your Switch

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

Connect to Your Switch

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

RJ45 serial console port

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

Ethernet management port

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

Alternatively, attach an Ethernet cable, using an SFP (mini-GBIC) transceiver module connected to an Ethernet management port, directly to a laptop to view and locally manage the switch configuration.

The Ethernet management ports are located on the front panel of the switch. They support 1/10 Gbps speeds.

For switch connection details, see [Connect to a Management Console](#) on page 46.

Configure and Operate Your Switch

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

Generic command-line interface (CLI)

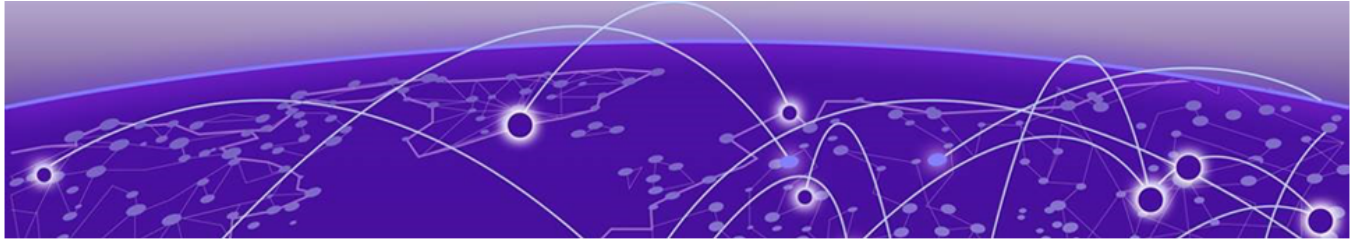
The command line interface (CLI) is a powerful tool for managing and configuring switches and network settings. The CLI interface can be accessed through Telnet or Secure Shell (SSH2). For more information, see the *Extreme ONE OS Switching Management Configuration Guide* and the *Extreme ONE OS Switching Command Reference* for your version of Extreme ONE OS.

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, see the *Extreme ONE OS Switching Management Configuration Guide* for your version of Extreme ONE OS.

gNMI/gRPC

gNMI (gRPC Network Management Interface) and gRPC (gRPC Remote Procedure Call) are protocols used for network management and operations. gNMI is a specification that defines a set of gRPC-based APIs for network management. gRPC is a high-performance, open-source universal RPC framework used to define and implement the gNMI APIs, enabling efficient and scalable network management operations. For more information, see the *Extreme ONE OS Switching gNOI Reference Guide* for your version of Extreme ONE OS.



FEC Configuration Support

Configure Forward Error Correction (FEC) on a port to obtain error control in data transmission over an unreliable or noisy channel. You can configure FEC on 400 Gbps ports, 100 Gbps ports, and 25 Gbps ports.

The following FEC options are supported:

- Auto Detect
- Disabled
- RS-FEC
- FC-FEC

FEC Mode	Host Interface Configuration	Peer Interface Configuration	Link Operational Status	LINK FEC Operational Status	Comments
Auto Detect	Auto	Auto	Up	n/a	Operational FEC based on present transceiver
		RS-FEC	n/a	n/a	Link operational status and operational FEC based on present transceiver. If transceiver default have RS-FEC and peer configured as RS-FEC link will comes up and operational FEC is RS-FEC.
		FC-FEC	n/a	n/a	
		Disable	n/a	n/a	

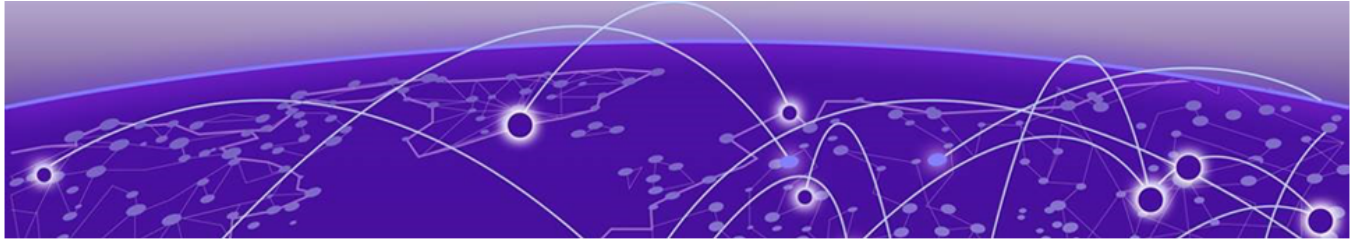
FEC Mode	Host Interface Configuration	Peer Interface Configuration	Link Operational Status	LINK FEC Operational Status	Comments
RS-FEC	RS-FEC	Auto	Depends on present transceiver	Depends on present transceiver	n/a
		RS-FEC	Up	RSFEC/ RS528/ RS544-2xN	Depends on peer interface support
		FC-FEC	Down	Disable	n/a
		Disable	Down	Disable	n/a
FC-FEC	FC-FEC	Auto	Depends on present transceiver	Depends on present transceiver	n/a
		RS-FEC	Down	Disable	
		FC-FEC	Up	FC-FEC	
		Disable	Down	Disable	
Disable	Disable	Auto	Depends on present transceiver	Depends on present transceiver	n/a
		RS-FEC	Down	Disable	
		FC-FEC	Down	Disable	
		Disable	Up	Disable	

- FC-FEC is only supported on 25G ports
- Only RS-FEC and AutoFEC work on 400G ports
- FEC Disable doesn't work on 4x100G ports
- On 4x100G breakout ports, set FEC to RS-FEC and set peer end 100G interface to FEC Disable. The links come up with FEC Disable as the link FEC operational status. (This is because the 100G-DR optic takes in the 100G-PAM4 RS-FEC and converts to 100G-NRZ with no FEC.)



Important

On ports that support FEC configuration, ensure that you configure the same option at both end points. Otherwise, the link does not come up.



Fan Modules for Use with Your Switch

[Fan Modules](#) on page 20

The Extreme 8730 is designed to run with hot-swappable internal fan modules that provide the cooling needed for the switch to operate. The switch can include up to seven redundant, hot-swappable fan modules. The fan modules can be removed and replaced without special tools. The device can continue operating during the replacement (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. All installed fan modules must blow air in the same direction and must match the airflow direction of the installed power supplies. Fan module slots are located on the rear panel of the switch.

Precautions Specific to Fan Modules



Warning

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



Caution

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



Note

Ensure that the airflow direction of the fan modules matches that of the installed power supply units. The rear panel of the switch is marked **Air Out** for back-to-front airflow or **Air In** for front-to-back airflow..



Caution

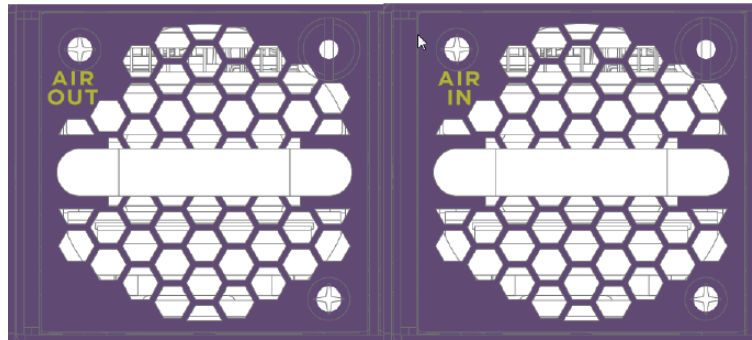
If you do not install a fan module or a power supply in a slot, you must keep the slot filler panel in place. If you run the chassis with an uncovered slot, the system will overheat.

Fan Modules

Two fan module options, with front-to-back or back-to-front airflow, are available for Extreme 8730 switch models:

- Part number XN-FAN-006-FB provides front-to-back airflow for switch cooling.
- Part number XN-FAN-006-BF provides back-to-front airflow for switch cooling.

The fan modules labeled **Air In** provide back-to-front airflow. The fan modules labeled **Air Out** provide front-to-back airflow.



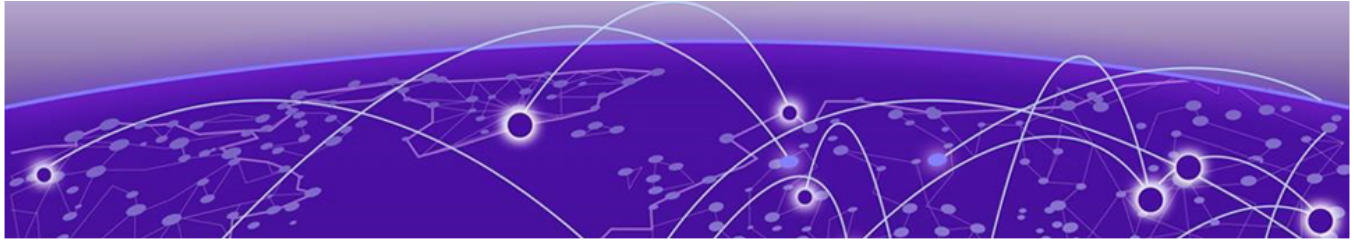
Fan with Front-to-Back Airflow

Fan with Back-to-Front Airflow

Figure 4: Fan Airflow Directions

Fan modules are ordered separately for the base Extreme 8730 switch. Fans are included with other models.

For information on installing or replacing a fan module, see [Replace Fan Modules](#) on page 55.



Power Supplies for Use with Your Switch

[1600 W AC Power Supplies](#) on page 22

[1600 W DC Power Supplies](#) on page 22

The Extreme 8730 switch is designed to run with one replaceable 1600 W internal AC or DC power supply module that provides all of the power needed for the switch to operate. You can install a second 1600 W AC or DC power supply module for redundancy. You can remove and replace a power supply module (hot-swap) without interrupting the switch's operation as long as there is a functional 1600 W AC or DC power supply module in the switch. 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.

Precautions Specific to Power Supply Modules



Warning

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



Warning

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



Caution

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

**Note**

Ensure that the airflow direction of the power supply unit matches that of the installed fan tray. Power supply units with a blue tab provide front-to-back airflow. Power supply units with a red tab provide back-to-front airflow.

**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 Extreme 8730 switch models.

- 1600W AC power supply - front-to-back airflow (part no. XN-ACPWR-1600W-FB- A)
- 1600W AC power supply - back-to-front airflow (part no. XN-ACPWR-1600W-BF- A)

Power supplies are ordered separately for the base Extreme 8730 switch. Power supplies are included with other models.

**Note**

AC power input cords are not provided with AC power supplies.

For information on installing or replacing an AC power supply, see [Replace a 1600 W Internal AC Power Supply](#) on page 51.

LEDs on the 1600 W AC power supply provide information on the unit's operational status. See [Table 10](#) on page 63 for details.

1600 W DC Power Supplies

Two 1600 W DC power supply options, with front-to-back or back-to-front airflow, are available for Extreme 8730 switch models.

- 1600W DC power supply - front-to-back airflow (part no. XN-DCPWR-1600W-FB- A)
- 1600W DC power supply - back-to-front airflow (part no. XN-DCPWR-1600W-BF- A)

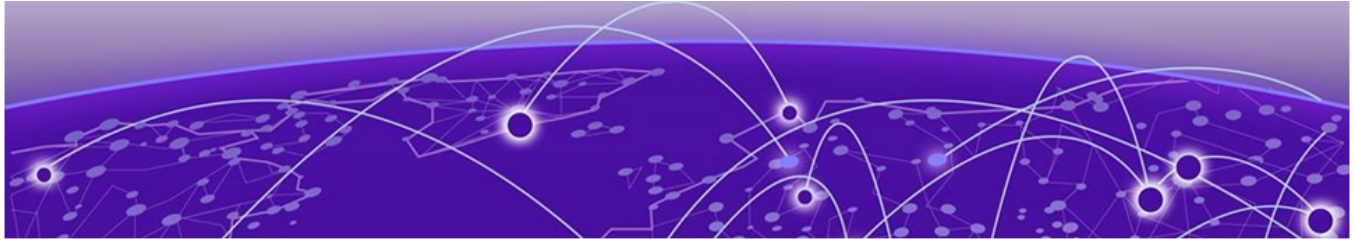
Power supplies are ordered separately for the base Extreme 8730 switch. Power supplies are included with other models.

**Note**

DC power input cords are provided with DC power supplies.

For information on installing or replacing a DC power supply, see [Replace a 1600 W Internal DC Power Supply](#) on page 52.

LEDs on the 1600 W DC power supply provide information on the unit's operational status. See [Table 11](#) on page 63 for details.



Site Preparation

[Plan Your Site](#) on page 23

[Operating Environment Requirements](#) on page 24

[Rack Specifications and Recommendations](#) on page 27

[Evaluate and Meet Cable Requirements](#) on page 29

[Meet Power Requirements](#) on page 33

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 64 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 64.

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 4](#) are authorities on electrical codes.

Table 4: Authorities on Electrical Codes

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

Set Up the Wiring Closet

Be aware of the following recommendations for your wiring closet:

- Make sure that your system is easily accessible for installation and service. See [Rack Specifications and Recommendations](#) on page 27 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 5](#) 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 5: Thermal Shutdown and Restart Behavior

Switch Model(s)	Behavior
All models	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 14 AWG stranded copper wire for grounding.

AC-powered switches do not need separate chassis grounding.

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



Note

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

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.

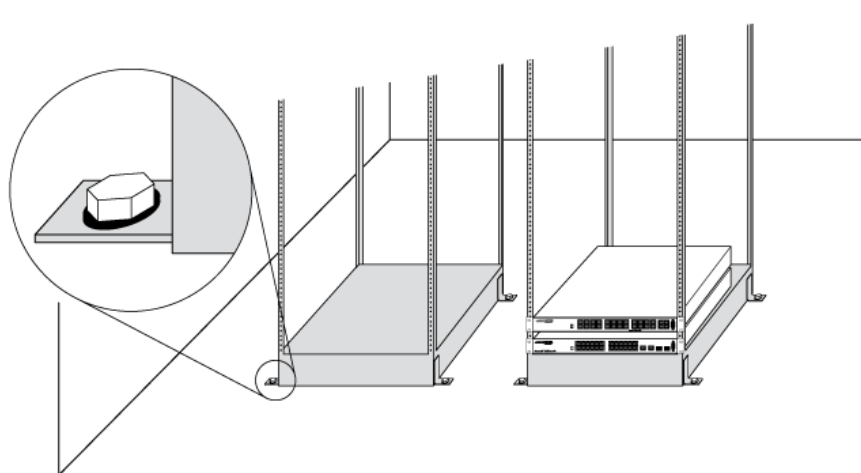


Figure 5: Properly Secured Rack

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

Evaluate and Meet Cable Requirements

Use professional consultants for site planning and cabling.

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

For information, visit www.bicsi.org.

Label Cables and Keep Accurate Records

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

Keeping accurate records helps you to:

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

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

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

Install Cable

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

- Examine cable for cuts, bends, and nicks.
- Support cable using a cable manager that is mounted above connectors to avoid unnecessary weight on the cable bundles.
- Use cable managers to route cable bundles to the left and right of the network equipment to maximize accessibility to the connectors.
- Provide enough slack, approximately 5 to 7.5 cm (2 to 3 in), to provide proper strain relief as shown in [Figure 6](#) on page 31.
- Bundle cable using hook-and-loop straps to avoid injuring cables.
- If you build your own cable, be sure that connectors are properly crimped.
- When installing a patch panel using twisted pair wiring, untwist no more than 2.5 cm (1 in) of the cable to avoid radio frequency (RF) interference.
- Discharge the RJ45 Ethernet cable before plugging it into a port on the switch.



Caution

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

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

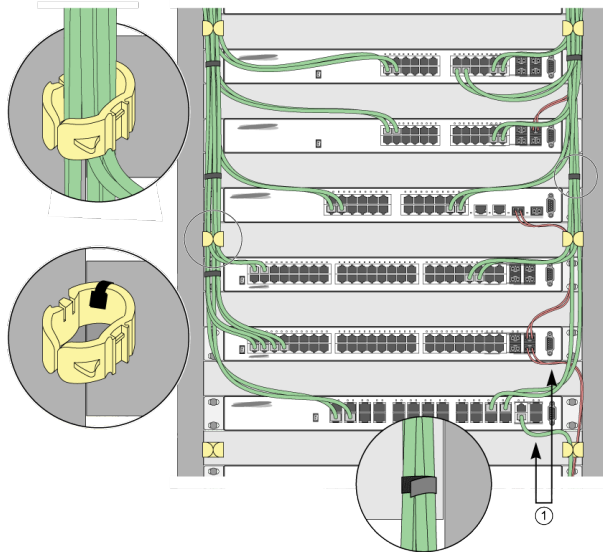


Figure 6: Properly Installed and Bundled Cable

1 = Ensure adequate slack and bend radius

Handle Fiber Optic Cable

Fiber optic cable must be handled carefully during installation.

Every cable has a minimum bend radius, and fibers will be damaged if the cables are bent too sharply. It is also important not to stretch the cable during installation. Ensure that the bend radius for fiber optic cables is equal to at least 5 cm (2 in) for each 90-degree turn as shown in [Figure 7](#).



Note

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

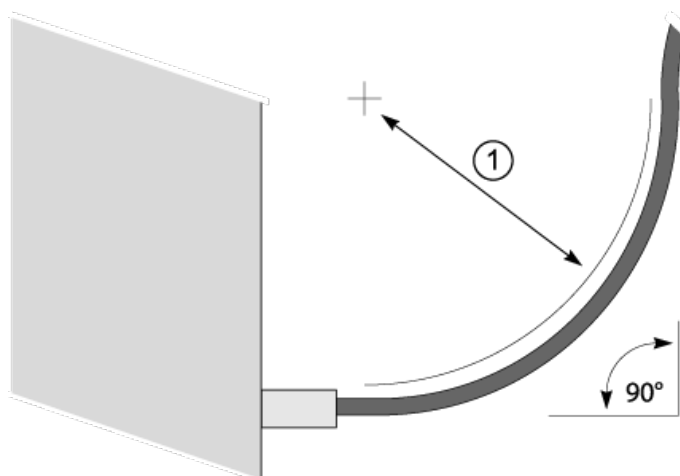


Figure 7: Bend Radius for Fiber Optic Cable

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

Cable Distances and Types

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.

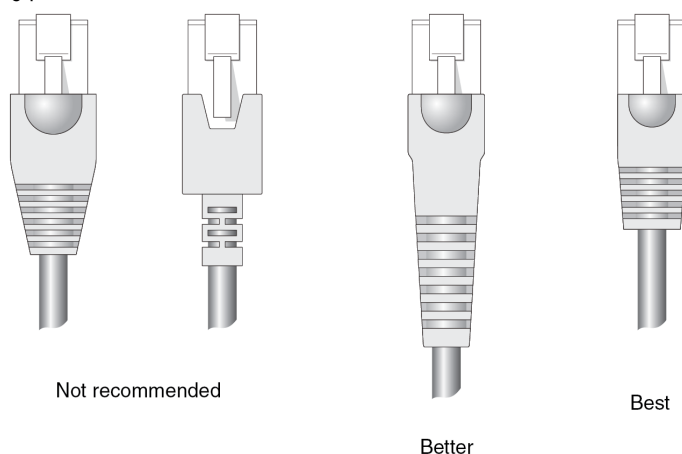
Use RJ45 Connector Jackets

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 8](#) shows examples of recommended and non-recommended connector jacket types.



SPQ_001

Figure 8: RJ45 Connector Jacket Types

Prevent Radio Frequency Interference (RFI)

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

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

To prevent RF interference, avoid the following situations:

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

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

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 64.

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 35.)

**Note**

Use a UPS that provides online protection.

Calculate Volt-Amperage Requirements

To determine the size of UPS that you need:

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

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

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

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

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

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

Provide a Suitable UPS Transition Time

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

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

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

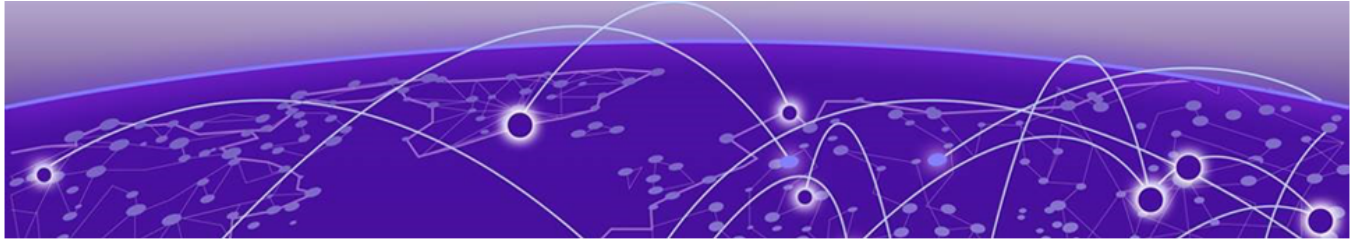
Follow Applicable Industry Standards

Always follow applicable industry standards.

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

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

You can access these standards at: or .



Install Your Switch

[Safety Considerations for Installation](#) on page 37
[What You Will Need for the Installation](#) on page 37
[Attach the Switch to a Rack or Cabinet](#) on page 37
[Install Optional Components](#) on page 43
[Install Internal Power Supplies](#) on page 43
[Connect Network Interface Cables](#) on page 43
[Turn on the Switch](#) on page 44

Before you attempt to install or remove an Extreme Networks switch, read the precautions in [Safety Considerations for Installation](#) on page 37.

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

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

The installation process includes the following tasks:

1. Prepare to install the switch. See [What You Will Need for the Installation](#) on page 37.
2. Install the switch in the rack. See [Attach the Switch to a Rack or Cabinet](#) on page 37.
3. Install optional components: optical transceivers and cables. See the instructions in [Install Optional Components](#) on page 43.
4. If your switch does not come with an installed internal power supply, install one or two power supplies. See [Install Internal Power Supplies](#) on page 43.



Note

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

5. Connect network interface cables. See [Connect Network Interface Cables](#) on page 43.
6. Power up the switch. See [Turn on the Switch](#) on page 44.
7. Perform initial network connection and configuration. See [Activate and Verify the Switch](#) on page 46.

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.

What You Will Need for the Installation

Ensure that you have followed the guidance in [Site Preparation](#) on page 23, 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 model to see what hardware is provided in the switch packaging.

Attach the Switch to a Rack or Cabinet

The Extreme 8730 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.
- Two-post rack, using mounting brackets (not provided) to attach the front or the middle of the switch to the posts.

To attach a switch to a two-post rack, a four-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.

Four-Post Rack Mount

A four-post rack-mounting kit (part number XN-4P-RKMT302) is included in the box with your switch. The kit contains an instruction sheet, along with the following components:

- Two mounting brackets, known as *inner 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)

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.

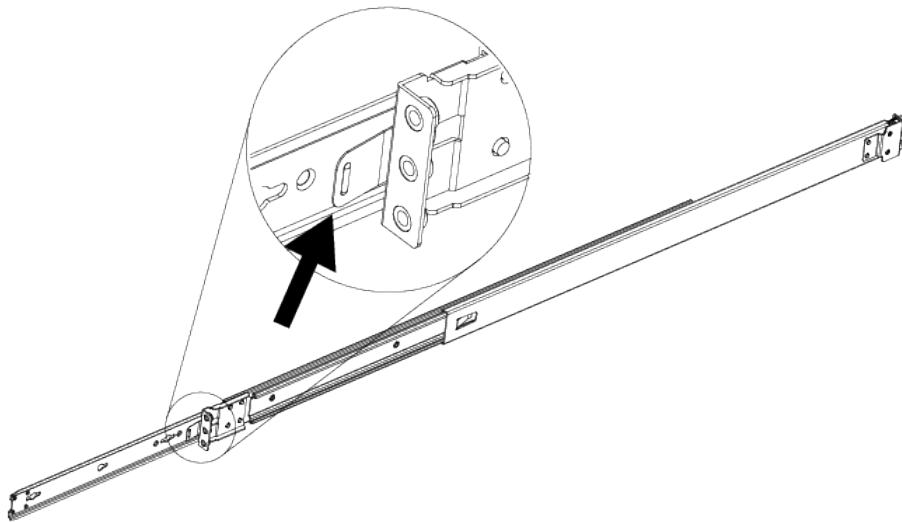


Figure 9: Separating the Inner Sliding Rails

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

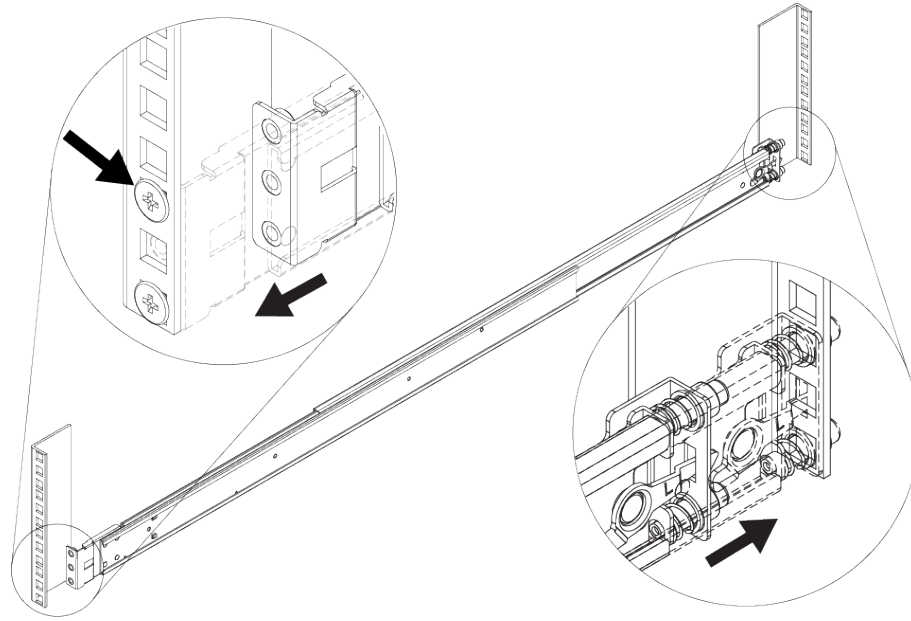


Figure 10: Attaching the Outer Rail

3. Attach an inner rail to the side of the device, 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 either the front or the rear panel of the unit and continue to step 4 on page 40.

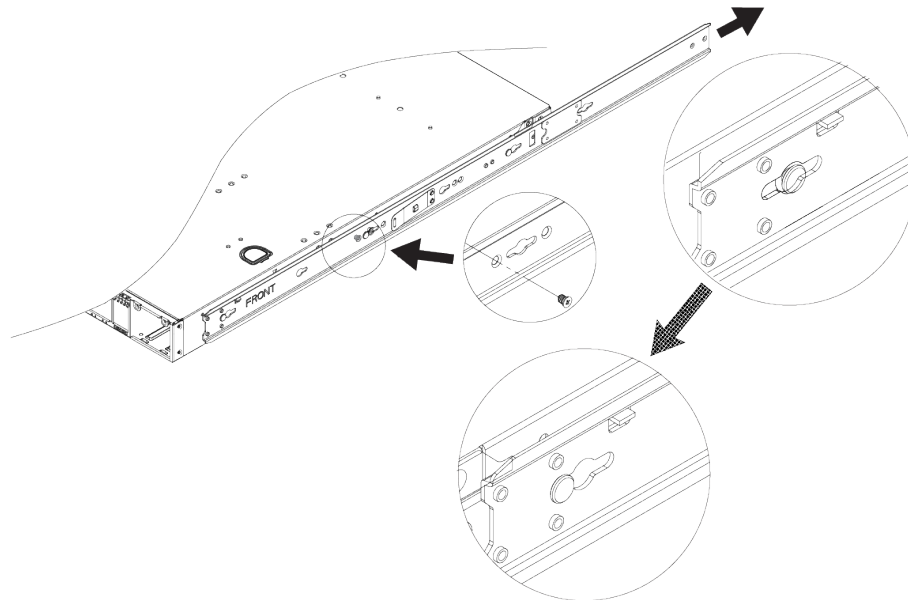


Figure 11: Front Installation: Attaching the Inner Rail

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

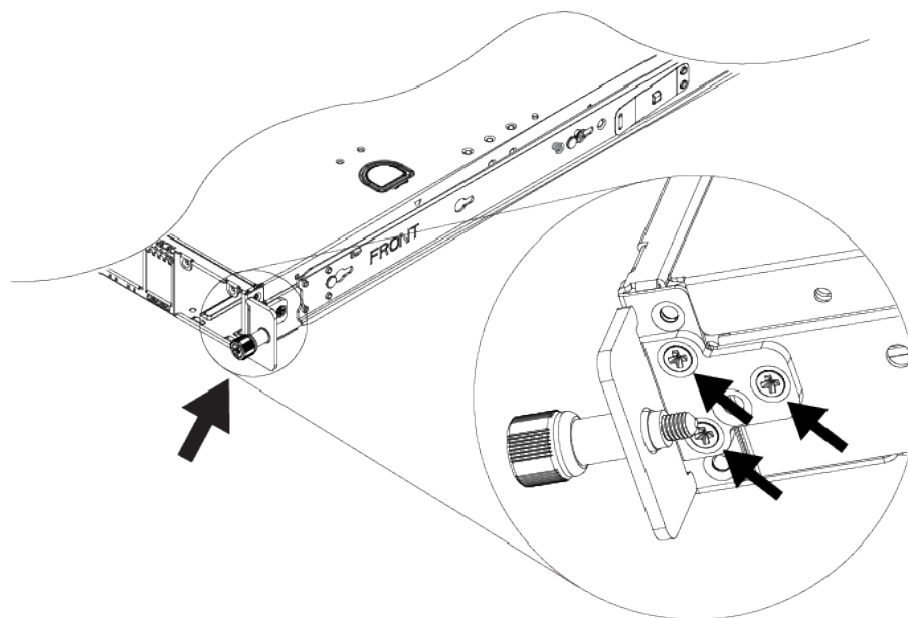


Figure 12: Front Installation: Attaching a Rack Ear

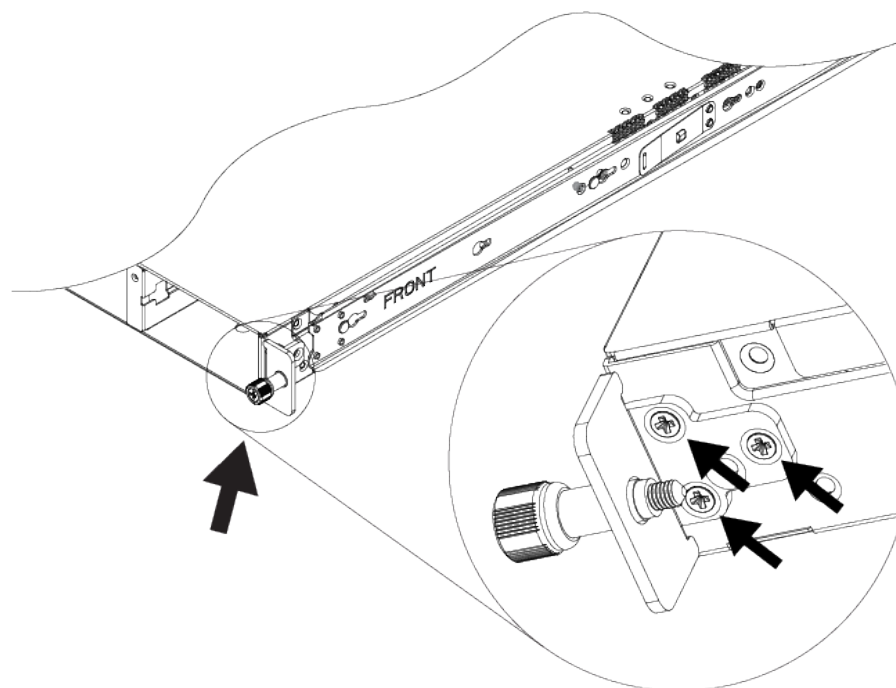


Figure 13: Rear Installation: Attaching a Rack Ear

4. Repeat steps 2 on page 38 and 3 for the other side of the device.
5. Insert the device into the rail kit. To install the device in the front of the rack, slide the device into the outer rails in the front of the rack.

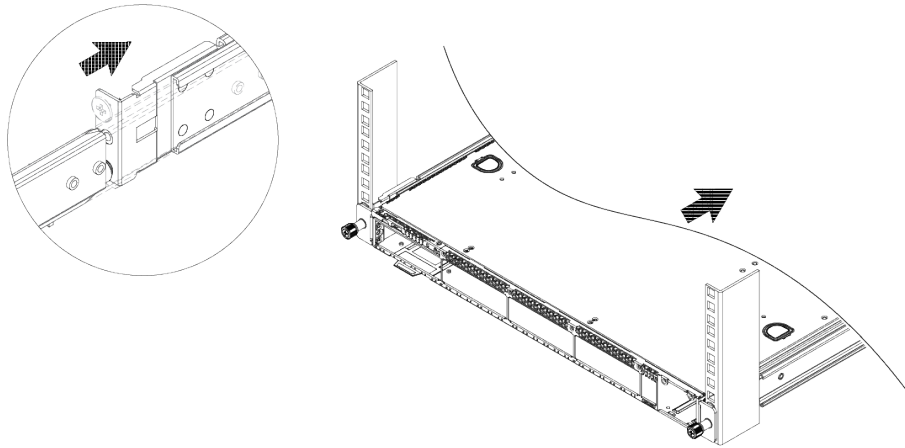


Figure 14: Front Installation: Inserting the Device

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

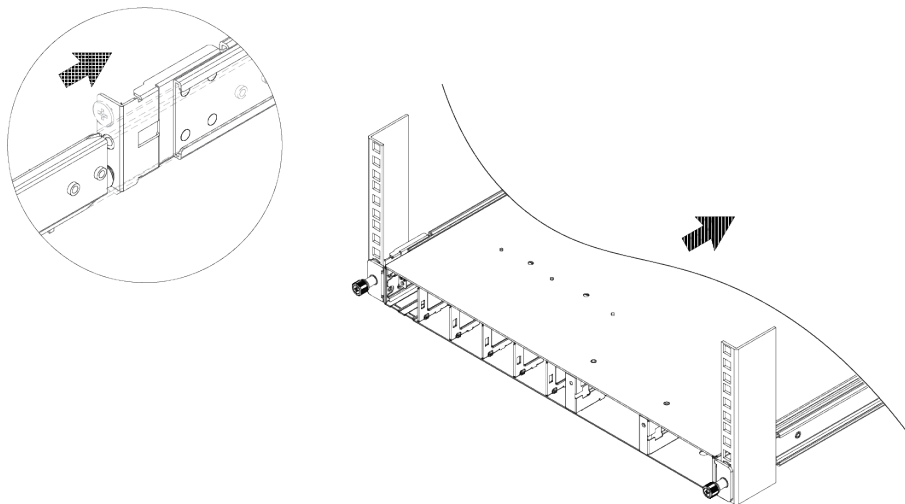


Figure 15: Rear Installation: Inserting the Device

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



Figure 16: Secure the Device

Two-Post Rack Mount

You can attach the switch to a two-post rack in either of two configurations:

- Front mount
- Mid-mount

The side of the switch has different sets of holes for attaching mounting brackets in either configuration. The 8730 Series supports flush mounting for 6" wide rack posts, and middle mounting for 3" & 6" wide rack posts. Brackets for a two-post mount are not included in the box with the switch. However, they can be ordered separately using part number XN-2P-RMKIT-005.

To attach the 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.
 - a. For a front mount, position the bracket over the holes so that the flange (ear) is even with the front of the device, as shown in the figure below:

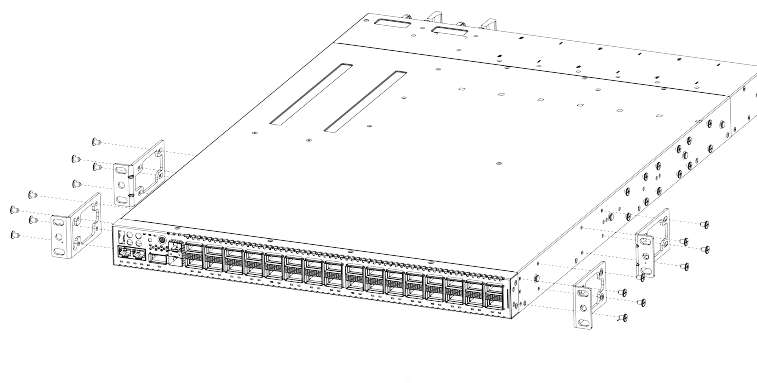


Figure 17: Flush-Mount: 6" Posts

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

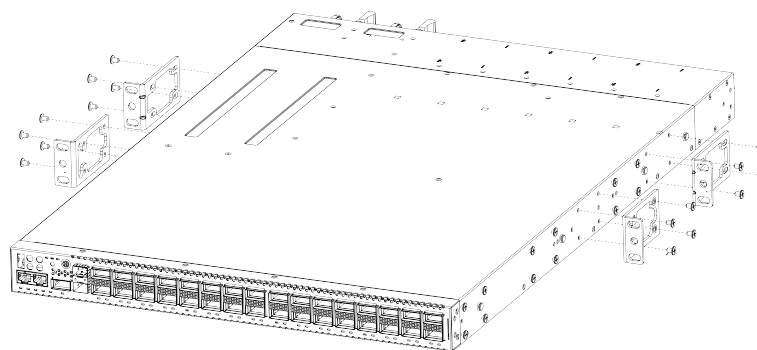


Figure 18: Mid-Mount: 3" and 6" Posts

- c. Use four small mounting screws (provided) to attach the bracket to the device.
2. Attach the other short mounting bracket to the other side of the device, as you did in step [1.a](#) on page 42.
3. Secure the brackets to the rack posts using rack-mounting screws that are appropriate for the rack (not provided).

If the switch comes with installed power supplies, skip to the topic: [Turn on the Switch](#) on page 44.

If the switch does not have an installed power supply, install one or two power supplies using the instructions in [Install Internal Power Supplies](#) on page 43.

Install Optional Components

After the switch is secured to the rack, 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 device does not come with an installed internal 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.

- If the power supply has a **red** tab, the airflow is front-to-back.
- If the power supply has a **blue** tab, the airflow is back-to-front.

The following 1600 W AC or DC internal power supply units (PSUs) are available for the switch:

- Part numbers XN-ACPWR-1600W-FB-A and XN-ACPWR-1600W-BF-A provide front-to-back airflow for cooling and 1600 W AC or DC power, respectively.
- Part numbers XN-DCPWR-1600W-FB-A and XN-DCPWR-1600W-BF-A provide back-to-front airflow for cooling and 1600 W AC or DC power supply, respectively.

For installation instructions, see:

- [Replace a 1600 W Internal AC Power Supply](#) on page 51
- [Replace a 1600 W Internal DC Power Supply](#) on page 52

Connect Network Interface Cables

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

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

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 71.

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 switch does not have a power button, so connecting the power cable at both ends turns the switch on. 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 PSU LEDs do not turn green, refer to [Power Supply LEDs](#) on page 63 for troubleshooting information.

When the PSU LED has turned green, follow the instructions in [Activate and Verify the Switch](#) on page 46.

Connect DC Power

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

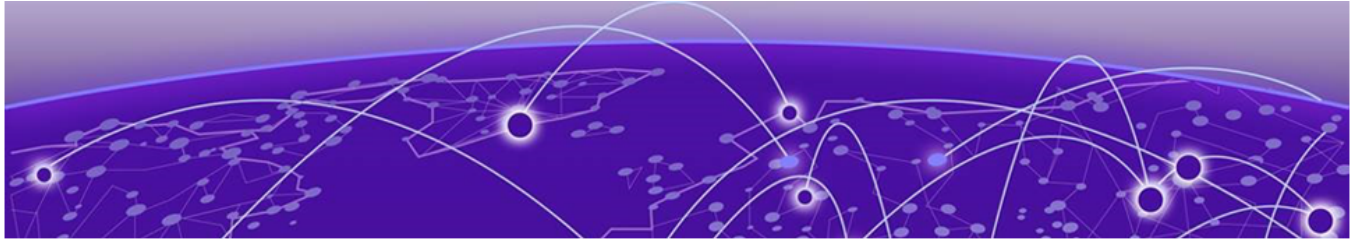
1. Verify that the DC circuit is de-energized.
2. Verify that the ground wire is connected to the grounding lug on the rear of the switch.



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 PSU LEDs do not turn green, refer to [Power Supply LEDs](#) on page 63 for troubleshooting information.



Activate and Verify the Switch

[Connect to a Management Console](#) on page 46

[Login for the First Time on Extreme ONE OS](#) on page 46

[Configure the Switch's IP Address for the Management VLAN](#) on page 47

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

Connect to a Management Console

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

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

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

Login for the First Time on Extreme ONE OS

The Extreme 8730 is powered by Extreme Networks new Extreme ONE OS operating system. Extreme ONE OS 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 ONE OS 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.

Configure the Switch's IP Address for the Management VLAN

You can configure the switch's IP address for the management virtual LAN (VLAN).



Note

The management port is part of the mgmt VLAN. This VLAN membership cannot be changed.

Log in to the management console, connect to the switch, and follow these steps.

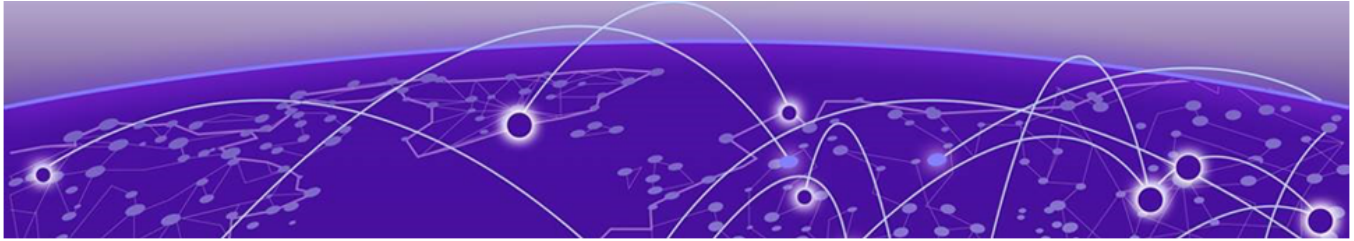
1. Assign a name, IP address and static route for the mgmt vrf as shown in the following example:

```
8730-32d# conf ter
8730-32d(config)# int management 0
8730-32d(config-if-mgmt-0)# ipv4 address 192.168.1.1/24
8730-32d(config-if-mgmt-0)# no shutdown

32d(config)# vrf
32d(config)# vrf mgmt-vrf
32d(config-vrf-mgmt-vrf)# static-route 192.169.1.0/24
```

2. Enter save to save your configuration changes so that they will be in effect after the next system reboot.

The configuration is saved to the configuration database of the switch.



Remove and Replace Components

[Remove a Device From a Rack](#) on page 48

[Replace Internal Power Supplies](#) on page 50

[Replace Fan Modules](#) on page 55

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

Remove a Device From a Rack

These procedures assume that you have attached the device to the rack as described in one of the following topics:

- [Four-Post Rack Mount](#) on page 38
- [Two-Post Rack Mount](#) on page 41

Remove a Device from a Four-Post Rack

Use the following instructions to remove a device 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.

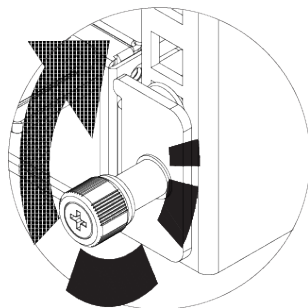


Figure 19: Unscrew Thumb Screws

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

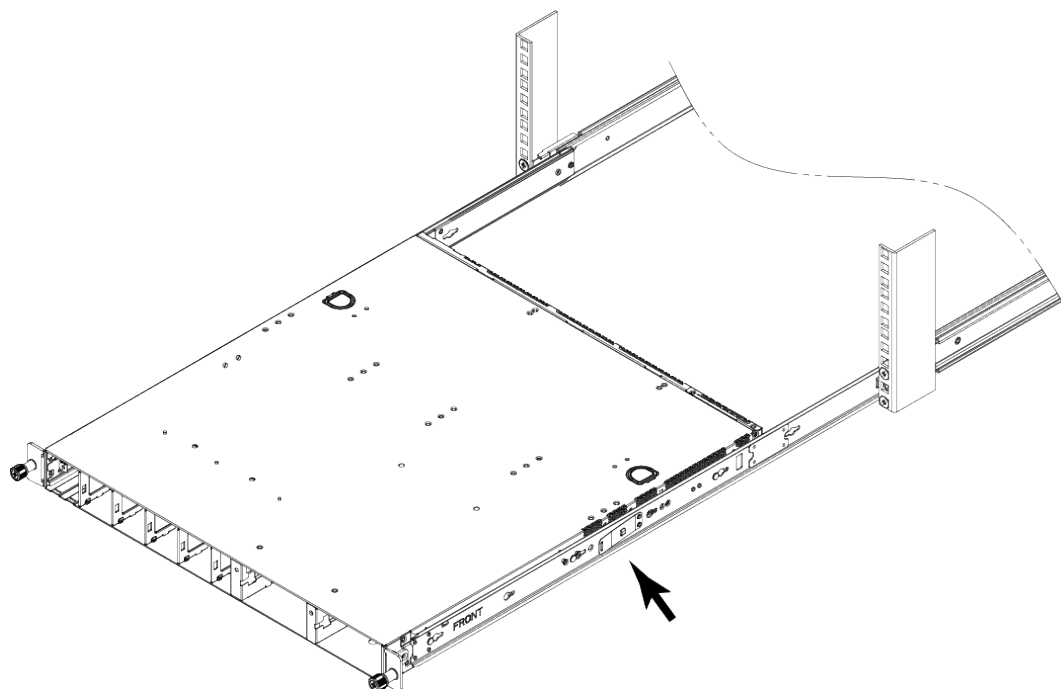


Figure 20: Disconnect latch for removal

- 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.

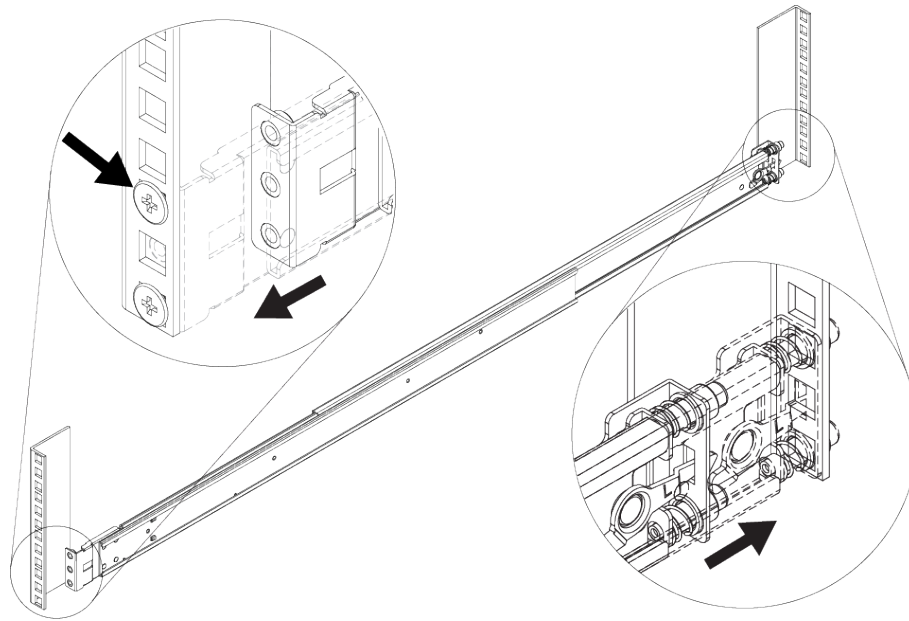


Figure 21: Removing the Outer Rail

- 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 Device from a Two-Post Rack

Use the following instructions to remove a device 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 Internal Power Supplies

For switches with replaceable power supplies, refer to the following information to replace the power supplies. The switches have two power supply slots. In a switch with a redundant power configuration, you can replace one power supply without powering down the switch ("hot swapping"). Installed power supplies can be AC, DC, or a combination of AC and DC. 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 an internal 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.

To replace one or both AC internal power supplies in the switch, follow the steps in [Replace a 1600 W Internal AC Power Supply](#) on page 51.

To replace one or both DC internal power supplies in the switch, follow the steps in [Replace a 1600 W Internal DC Power Supply](#) on page 52.

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.

- If the power supply has a **red** tab, the airflow is front-to-back.
- If the power supply has a **blue** tab, the airflow is back-to-front.

**Note**

The operating-system software cannot display the airflow direction.

Replace a 1600 W Internal AC Power Supply

To replace a 1600 W AC power supply (either part no. XN-ACPWR-1600W-FB-A or part no. XN-ACPWR-1600W-BF-A) in a switch, follow these instructions.

**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.

1. Remove a blank panel from the back of the switch if necessary.
2. Verify that the new power supply is right side up.
3. Verify that the new power supply's airflow direction (front-to-back or back-to-front) is compatible with the other installed power supplies (if any) and with the installed fan modules.
4. Carefully slide the power supply all the way into the power supply bay:

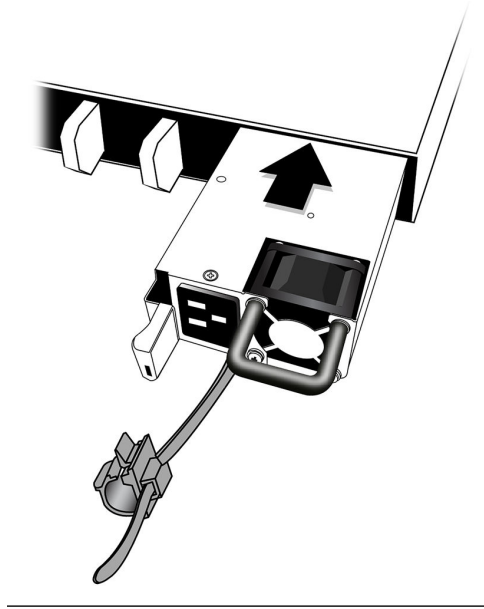


Figure 22: Installing a 1600 W AC Power Supply

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

Do not slam the power supply into the switch.



Note

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

6. Connect the AC power cord.
7. Connect the other end of the power cord to an AC power outlet.



Warning

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

To install another power supply, repeat this procedure.

Replace a 1600 W Internal DC Power Supply



Caution

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

To replace a 1600 W DC power supply in a switch, perform the following tasks in the order listed:

1. Make sure you have the tools and materials you need. See [Required Tools and Materials to Install a 1600 W DC Power Supply](#) on page 53.
2. Prepare the ground cable by stripping off the insulation. See [Prepare the Cables for a 1600 W DC Power Supply](#) on page 53.
3. Insert the power supply into the switch. See [Install a 1600 W DC Power Supply](#) on page 54.
4. Connect the ground wire. See [Connect the Ground Wire to a 1600 W DC Power Supply](#) on page 54.
5. Connect the power supply to the DC source voltage. See [Connect a 1600 W DC Power Supply to the Source Voltage](#) on page 55.
6. Power up to the switch. See [Turn on the Switch](#) on page 44.

To install a second power supply, repeat this procedure.

Required Tools and Materials to Install a 1600 W DC Power Supply

You need the following tools and materials to install or remove a 1600 W DC power supply in an Extreme 8730 switch.

- A #6 AWG copper cable for grounding the power supply and a DC power input cable, which is provided, to connect the power supply to the DC power source. The ground connection is green or green with a yellow stripe.
- 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 1600 W DC Power Supply

You will need two cable wires for each installed DC power supply: one DC power input cable, which is provided, and a grounding cable. We recommend that each cable have differently colored insulation, as described in [Required Tools and Materials to Install a 1600 W 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.

Install a 1600 W DC Power Supply

Before installing a 1600 W DC power supply (either part no. XN-DCPWR-1600W-FB-A or part no. XN-DCPWR-1600W-BF-A):

- Verify that the airflow direction for the power supply is the same as the airflow direction of the installed fan modules in the switch.

To install the power supply, follow these steps:

**Caution**

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

1. Attach an ESD-preventive wrist strap to your bare wrist and connect the metal end to an appropriate ground point on the rack.
2. Remove a blank panel from the rear of the switch if necessary.
3. Verify that the power supply is right side up (label on the bottom).
4. Carefully slide the power supply all the way into the power supply bay.
5. Push the power supply in until the latch snaps into place.

**Caution**

Do not slam the power supply into the switch.

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

When you are finished, connect the ground wire to each power supply. See [Connect the Ground Wire to a 1600 W DC Power Supply](#).

Connect the Ground Wire to a 1600 W DC Power Supply

Follow these steps to connect the ground wire to a 1600 W 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 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.

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

- a. Attach mm 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.

When you have connected the ground wire, connect the power supply to the power source using the provided DC power input cable. Follow the instructions in [Connect a 1600 W DC Power Supply to the Source Voltage](#).

Connect a 1600 W 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, following these instructions:

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. Attach one end of the DC power supply wires to the power supply DC power terminals, wrapping the wire around the terminals. Make note of the polarity.
4. Make sure the screws are tight with no wire touching the ground screw.
5. Connect the other end of DC power supply wires to the DC source voltage, matching the polarity. Use 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 44 for more information.

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 cooling 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 cooling 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.

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. The fan modules labeled **Air In** provide back-to-front airflow. The fan modules labeled **Air Out** provide front-to-back airflow.

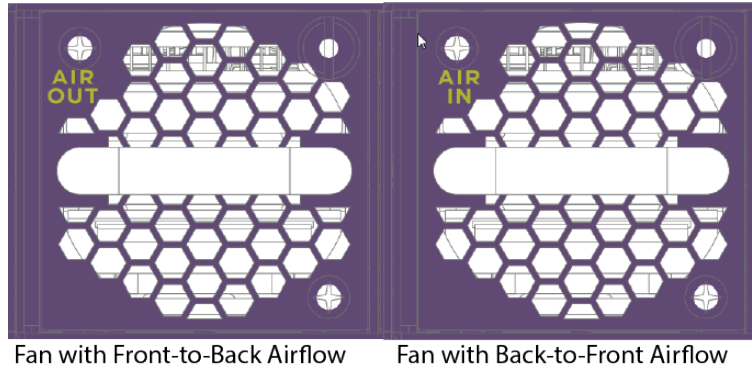


Figure 23: Fan Airflow Directions

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.

Replace a Fan Module

Use the following instructions to replace a fan module.

1. Completely loosen the captive retaining screws on the fan module.

On most switch models, the fan module has two retaining screws at the bottom corners of the module, as shown in [Figure 24](#).

On some switch models, the fan module has a single retaining screw at the top right corner of the module.

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

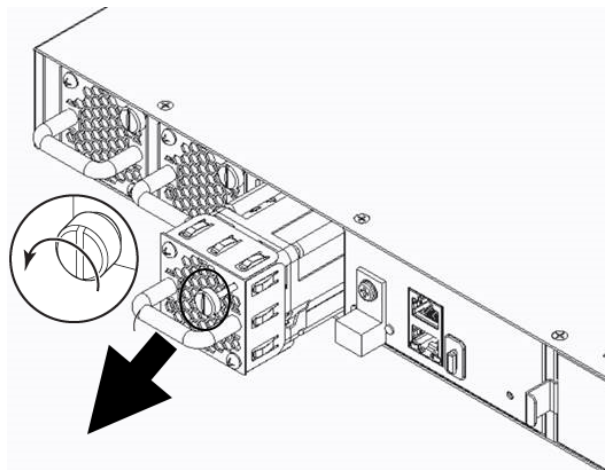


Figure 24: Removing a Fan Module

3. Verify that the airflow direction on the replacement fan module matches that of the installed fan modules.

Fans with front-to-back airflow are labeled **Air Out**. Fans with back-to-front airflow are labeled **Air In**.

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

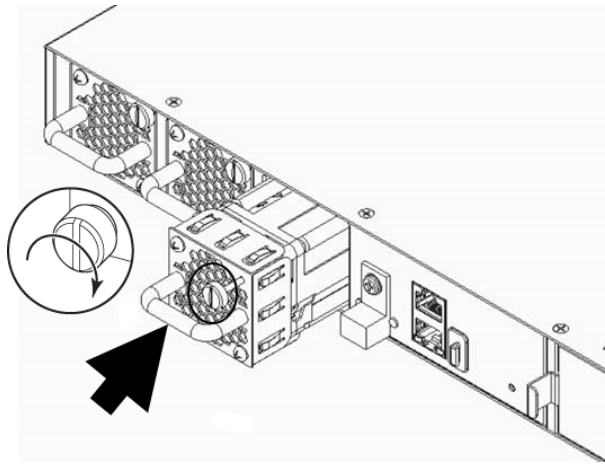
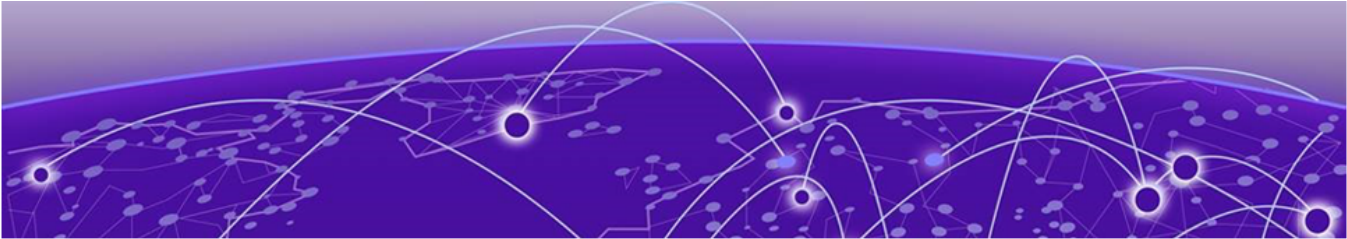


Figure 25: Installing a Fan Module

5. Align and fully tighten the captive retaining screws.



Monitor the Device

- [System Status LEDs](#) on page 58
- [1G/10G SFP+ Management Port LEDs](#) on page 60
- [QSFP-DD Port and Sub-channel Selector LEDs](#) on page 60
- [QSFP28 Port LEDs](#) on page 62
- [Power Supply LEDs](#) on page 63

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 left-hand side of the front panel of the switch, below the Console and ToD ports, as shown in [Figure 26](#).

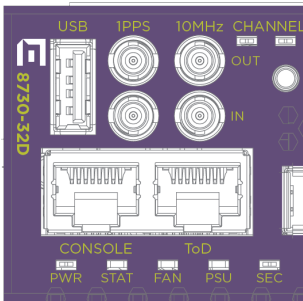


Figure 26: Location of the System Status LEDs

The colors and the states for the LEDs are described in [Table 6](#).

Table 6: Description of the 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 6: Description of the System Status LEDs (continued)

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

1G/10G SFP+ Management Port LEDs

The 1G/10G SFP+ Management Port bi-colored (amber and green) LEDs are located between the two SFP+ management ports on the left-hand side of the front panel of the switch, next to the Advanced Services/Processing Offload port. The LEDs are triangular and point to the port they support (up for the top management port, down for the bottom management port), as shown in [Figure 27](#).

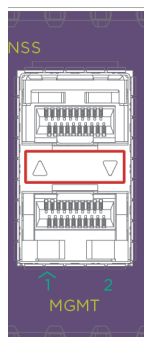


Figure 27: 1G/10G SFP+ Management Port LEDs

The meaning of the colors and states for the LEDs are described in [Table 7](#).

Table 7: 1G/10G SFP+ (Management Port LEDs)

LED	State	Definition
Link/Activity	Solid green	The port is linked at 10Gbps.
	Blinking green	The port has data activity at 10Gbps.
	Slow blinking green	Local fault.
	Solid amber	The port is linked at 1Gbps.
	Blinking amber	The port has data activity at 1Gbps.
	Slow blinking amber	Remote fault.
	Off	No link.

QSFP-DD Port and Sub-channel Selector LEDs

The QSFP-DD port LEDs are located below the QSFP-DD ports on the front panel of the switch. The LEDs are triangular and point to the port they support (up for the top QSFP-DD port, down for the bottom QSFP-DD port), as shown in [Figure 28](#).

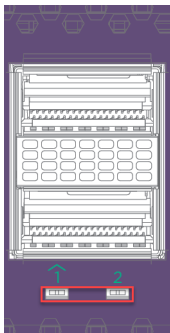


Figure 28: QSFP-DD Port LEDs

The sub-channel selector button and LEDs are located on the left-hand side of the front panel of the switch, above the Advanced Services/Processing Offload port, as shown in [Figure 29](#). Pushing the sub-channel selector button cycles through sub-channels 1 through 8.

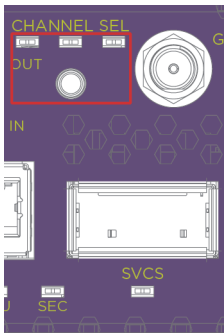


Figure 29: QSFP-DD Sub-channel Selector Button and LEDs

The meaning of the colors and states for the LED are described in [Table 8](#).

Table 8: QSFP-DD Port and Sub-channel Selector LEDs

Channel indicator			
LED 0	LED1	LED 2	QSFP-DD sub-channel
Off	Off	Off	1
Off	Off	Green	2
Off	Green	Off	3
Off	Green	Green	4
Green	Off	Off	5
Green	Off	Green	6
Green	Green	Off	7
Green	Green	Green	8

QSFP28 Port LEDs

The meaning of the colors and states for the QSFP28 port LEDs are described in [Table 9](#).

Table 9: QSFP28 Link/Activity Port LEDs

State	Description	Red	Green	Blue	Blink
Solid cyan	Link at 400Gbps for QSFP-DD, 10Gbps for all other port types.	0	1	1	0
Fast blinking cyan	Activity at 400Gbps for QSFPDD, 10Gbps for all other port types.	0	1	1	1
Solid white	Link at 100Gbps.	1	1	1	-
Fast blinking white	Activity at 100Gbps.	1	1	1	1
Solid blue	Link at 40Gbps.	0	0	1	0
Fast blinking blue	Activity at 40Gbps.	0	0	1	1
Solid green	Link at 25Gbps or 10Gbps.	0	1	0	0
Fast blinking green	Activity at 25Gbps or 10Gbps.	0	1	0	1
Solid red	Local fault Detected.	1	0	0	0
Blinking red	Remote fault detected.	1	0	0	1
Off	No link or fault. Port is either administratively disabled or enabled but no transceiver is installed	0	0	0	0

Power Supply LEDs

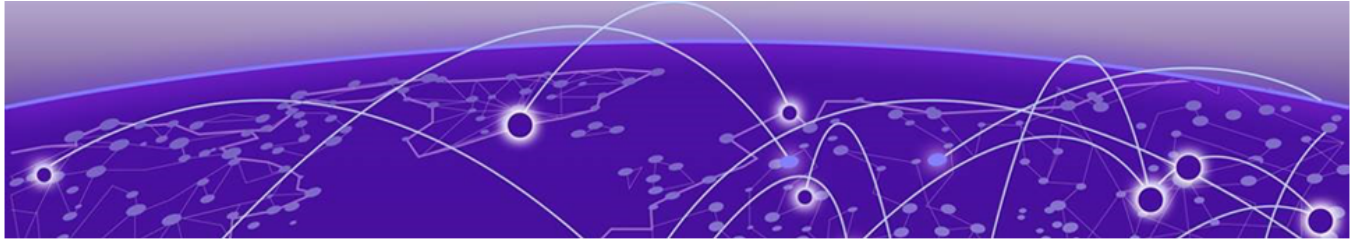
The power supplies have a bi-color (green/red) LED to indicate power supply status. [Table 10](#) and [Table 11](#) on page 63 describe the LED state and description:

Table 10: 1600 W AC Power Supply LEDs

LED	Description
Off	No AC power to all power supplies
Blinking red	No AC power to this PSU only FAN Fault
Blinking green	AC present / only standby output on
Solid green	Power supply DC output ON and OK
Solid red	Power supply failure
Blinking red and green	Power supply warning

Table 11: 1600 W DC Power Supply LEDs

LED	Description
Off	No DC power to all power supplies
Blinking red	No DC power to this PSU only FAN Fault
Blinking green	DC present / only standby output on
Solid green	Power supply DC output ON and OK
Solid red	Power supply failure
Blinking red and green	Power supply warning



Technical Specifications

[Extreme 8730 Technical Specifications](#) on page 64

[Acoustic Noise and Fan Speed](#) on page 66

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[Mean Time Between Failures](#) on page 67

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[EMI/EMC Standards](#) on page 69

[Power Cord Requirements for AC-Powered Switches and AC Power Supplies](#) on page 71

[Console Connector Pinouts](#) on page 71

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

Extreme 8730 Technical Specifications

The following tables contain external interfaces information and weights and dimensions information for the switch.

External Interfaces

Interfaces	Description
Ports	• 32 x 40/100/400Gbps QSFP-DD ports (backwards compatible to QSFP-28) • 2 x 1/10Gbps SFP+ out-of-band management ports • 1 x RJ-45 Serial console port • 1 x USB A port for management or external USB flash • Global Navigation Satellite System for GPS signal • HD-BNC connector for Time synchronization, 1PPS and 10MHz • Advanced services port for the processor to offload to external appliance • TOD (Time of Day), 1PPS signal inputs
Power Supplies	Modular 1600W AC power supply (up to 2 PSUs) Modular 1600W DC power supply (up to 2 PSUs) Front-to back and back-to-front airflow options
Fan Tray	7 fan modules, support one fan redundancy Front-to back and back-to-front airflow options
Dimensions	17.3in W/24.9in D/1.71in H (439.6mm W/633.5mm D/43.5mm H)
Weight	28.0 lb (12.7 kg) with no PSU / 32.4 lb (14.7 kg) with two PSU

Weights and Dimensions of Accessories

Model	Weight	Dimensions
XN-FAN-006-FB: Fan, front-to-back XN-FAN-006-BF: Fan, back-to-front	0.18kg (0.39lb)	42.0mm W x 40.9mm H x 136.7mm D (1.65 in W x 1.61 in H x 5.38in D)
XN-ACPWR-1600W-FB-A: PSU, front-to-back XN-ACPWR-1600W-BF-A: PSU, back-to-front	2.69lb (1.22kg)	54.5mm W x 40.2mm H x 352mm D (2.15in W x 1.58in H x 13.86in D)

Model	Weight	Dimensions
XN-DCPWR-1600W-FB-A: PSU, front-to-back XN-DCPWR-1600W-FB-A: PSU, front-to-back	2.77lb (1.26kg)	54.5mm W x 40.2mm H x 352mm D (2.15in W x 1.58in H x 13.86in D)
XN-4P-RKMT302 - Four-post rack mount kit (included with switch)	2.84kg (6.26lb)	70mm W x 50mm H x 72.0mm D (2.76in W x 1.97in H x 28.4in D)
XN-2P-RMKIT-005 - Two-post rack mount kit (ordered separately)	0.17kg (0.375lb)	44.1mm W x 20.2mm H x 80.0mm D (1.74in W x 0.8in H x 3.15in D)

Acoustic Noise and Fan Speed

Table 12 contains acoustic noise information for the switch.

Table 12: Acoustic Noise

Switch Model	Bystander Sound Pressure (dB(A))	Declared Sound Power (Bels)
8730-32D-AC-F	78.2dB, 25°C	9.4B, 25°C
	82.4dB, 40°C	9.8B, 40°C
8730-32D-AC-R	82.8dB, 25°C	9.9B, 25°C
	83.4dB, 40°C	9.9B, 40°C
8730-32D-DC-F	78dB, 25°C	9.3B, 25°C
	82.1dB, 40°C	9.8B, 40°C
8730-32D-DC-R	83dB, 25°C	9.9B, 25°C
	83.1dB, 40°C	9.9B, 40°C

Table 13 contains fan speed information for the switch.

Table 13: Fan Speed

Model	Fan Speed	Fan RPM (typical)
8730-32D-AC-F 8730-32D-DC-F	Maximum (100%)	31600
	Low (30%)	9400
8730-32D-AC-R 8730-32D-DC-R	Maximum (100%)	31600
	Low (50%)	15800

CPU and Memory

Table 14 includes CPU and memory specifications for the switch.

Table 14: CPU and Memory

Specifications
Intel Snow Ridge P5362 Processor (24 cores)
2 DDR4 SO-DIMM slots, each with 16Gb with ECC, expandable to 32Gb
2x32MB SPI flash
80MB packet buffers shared across all input ports.
2 x 120G minimum NVMe SSD (internal)

Mean Time Between Failures

Table 15 contains mean time between failures information for the switch.

Table 15: Mean Time Between Failures

Model	PSU Details	Fan Details	MTBF at 25°C	MTBF at 50°C
8730-32D-AC-F	F-B, 1x AC 1600W	F-B, 7x internal fans	114,319	63,298
	F-B, 2x AC 1600W	F-B, 7x internal fans	124,573	68,749
8730-32D-AC-R	B-F, 1x AC 1600W	B-F, 7x internal fans	114,752	63,852
	B-F, 2x AC 1600W	B-F, 7x internal fans	124,916	69,184
8730-32D-DC-F	F-B, 1x DC 1600W	F-B, 7x internal fans	114,467	60,462
	F-B, 2x DC 1600W	F-B, 7x internal fans	124,691	66,491
8730-32D-DC-R	B-F, 1x DC 1600W	B-F, 7x internal fans	114,512	61,722
	B-F, 2x DC 1600W	B-F, 7x internal fans	124,726	67,501

Power Specifications

The following topic contains power specification information for the switch. Refer to the *Extreme 8730 Data Sheet* for up-to-date information.

Power Supply Specifications

Table 16 includes power supply specifications for the switch.

Table 16: Power Supply Specifications

	1600W AC PSU XN-ACPWR-1600W-FB-A XN-ACPWR-1600W-BF-A	1600WDC PSU XN-DCPWR-1600W-FB-A XN-DCPWR-1600W-BF-A
Voltage Input Range	100-120/200-240VAC	-48 to -60VDC
Line Frequency Range	50Hz– 60Hz	N/A
Input Rating	12/6A Max. for each PSU	30A Max. for each PSU
PSU Input Socket	IEC320 C16 IEC 320 C14	Terminal Block
PSU Output Cord	IEC320 C15 IEC 320 C13	N/A
Operating Conditions	0°C–45°C operation	0°C–45°C operation

Power and Heat Dissipation

Table 16 and Table 18 on page 68 include power consumption and power and heat dissipation for the switch.

Table 17: Heat Dissipation

Switch Model	Minimum Heat Dissipation (BTU/hr) (Idle, no ports linked)	Minimum Power Consumption (Watts) (Idle, no ports linked)	Maximum Heat Dissipation (BTU/hr) (Fans high, all ports 100% traffic)	Maximum Power Consumption (Watts) (Fans high, all ports 100% traffic)
8730-32D	1709.48 BTU/hr	501	4671.2 BTU/hr	1371.95

Table 18: Power Consumption

Max 8730-32D Power Consumption (Watts)	Vin (Vrms)	Max AC PSU Power Output per AC PSU (W)	Minimum Number of AC PSUs Required	N+1 Redundancy
1371.95	100-127	1000	2	Yes
1371.95	200-240	1600	1	Yes

Environmental

Environmental Specifications

EN/ETSI 300 019-2-1 v2.1.2 - Class 1.2 Storage

EN/ETSI 300 019-2-2 v2.3.1 - Class 2.3 Transportation

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

Environmental Compliance

EU RoHS - 2011/65/EU and amendments
EU WEEE - 2012/19/EU
EU REACH - Regulation (EC) No 1907/2006 - Reporting
China RoHS - GB/T 26572-2011
Taiwan RoHS - CNS 15663(2013.7)

Environmental Operating Conditions

Temp: 0° C to 40° C (32° F to 104° F)
Humidity: 5% to 95% relative humidity, non-condensing
Altitude: 0 to 2,000 meters (6,000 feet)
Shock (half sine) 300 m/s² (30G), 11ms, 3 axes, 6 shocks/axis
Random vibration: 3Hz to 500Hz at 1.5 G rms, Accelerations: 3Hz @ +10dB/Octave
PSD 10Hz @ 0.006 PSD 500Hz @ 0.006 PSD

Packaging and Storage Specifications

Temp: -40° C to 70° C (-40° F to 158° F)
Humidity: 5% to 95% relative humidity, non-condensing
Packaged Vibration: 5Hz to 20Hz at .01 g²/Hz (PSD), 20Hz to 500Hz at -3 dB/Oct (PSD)
Packaged Drop Height: 13 drops minimum on faces, sides, and corners at 23.6 inches (<30 kg box)

Standards

North American ITE

UL 60950-1
UL/CuL 62368-1 Listed
Complies with FCC 21CFR 1040.10 (U.S. Laser Safety)
CDRH Letter of Approval (US FDA Approval)
CSA 22.2 No. 60950-1 2nd edition 2014 (Canada)

European ITE

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

International ITE

CB Report & Certificate per IEC 62368-1
AS/NZS 60950-1 (Australia /New Zealand)

EMI/EMC Standards

North American EMC for ITE

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

European EMC Standards

EN 55035
EN 55032 Class A
EN 55011
EN 61000-3-2 (Harmonics)
EN 61000-3-3 (Flicker)
EN 300 386 (EMC Telecommunications)
2014/30/EU EMC Directive

International EMC Certifications

CISPR 32, Class A (International Emissions)
AS/NZS CISPR32
CISPR 24 Class A (International Immunity)
IEC 61000-4-2/EN 61000-4-2 Electrostatic Discharge, 8kV Contact, 15 kV Air, Criteria B
IEC 61000-4-3 /EN 61000-4-3 Radiated Immunity 3V/m, Criteria A
IEC 61000-4-4/EN 61000-4-4 Transient Burst, 2 kV, Criteria B
IEC 61000-4-5 /EN 61000-4-5 Surge, 2 kV L-L, 2 kV L-G, Level 3, Criteria B
IEC 61000-4-6 Conducted Immunity, 0.15-80MHz, 3 Vrms, 80%AM (1kHz), Criteria A
IEC/EN 61000-4-11 Power Dips & Interruptions, >30%, 25 periods, Criteria C
IEC/EN 61000-4-8 Power Frequency Magnetic Fields

Country Specific

VCCI Class A (Japan Emissions)
ACMA RCM (Australia Emissions)
CQC Mark (China)
KCC Mark, EMC Approval (Korea)
EAC Mark (Custom Union)
NRCS-LOA (South Africa)
BSMI Mark (Taiwan)
Anatel (Brazil)
NoM (Mexico)
EAC (Russia, Belarus, Kazakhstan)
RCM (Australia/New Zealand)
TEC (India)

IEEE 802.3 Media Access Standards

IEEE 802.3
IEEE802.3bz for operation at various rates
IEEE 802.3at
IEEE802.3bt
Bluetooth

Serial port: RS232
USB 2.0
FCC/IC

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

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

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

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

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

Console Connector Pinouts

Table 19 describes the pinouts for a DB-9 console plug connector.

Table 19: Pinouts for the DB-9 Console Connector

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

Figure 30 shows the pinouts for a 9-pin to 25-pin (RS-232) null-modem cable.

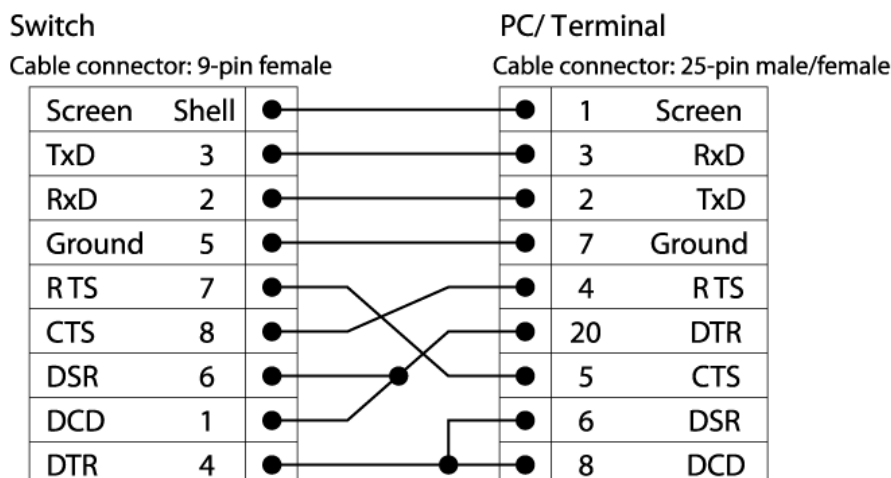
**Figure 30: Null-Modem Cable Pinouts**

Figure 31 shows the pinouts for a 9-pin to 9-pin (PC-AT) null-modem serial cable.

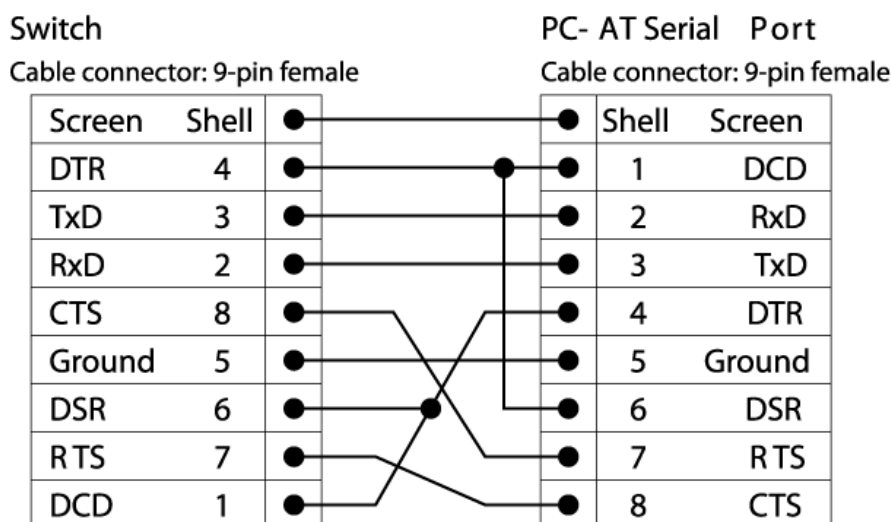
**Figure 31: PC-AT Serial Null-modem Cable Pinouts**

Table 20 shows the pinouts for the RJ45 console port on the ExtremeSwitching switches.

Table 20: RJ45 Console Port on Switch

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

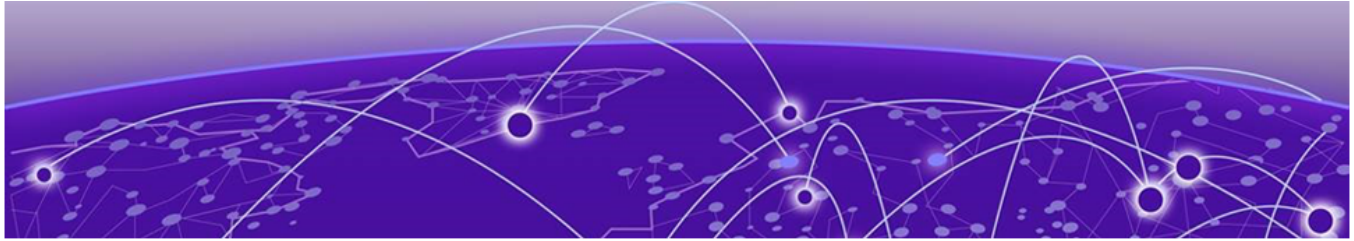
Table 20: RJ45 Console Port on Switch (continued)

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

Table 21 shows the pinouts for an RJ45-to-DB-9 adapter.

Table 21: Pinouts for an RJ45 to DB-9 Adapter

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



Safety and Regulatory Information

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[General Safety Precautions](#) on page 75
[Maintenance Safety](#) on page 76
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[Select Power Supply Cords](#) on page 79
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on page 81



Note

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

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

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

Considerations Before Installing

Consider the following items before you install equipment.

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

General Safety Precautions

Follow these guidelines:

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

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

Maintenance Safety

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

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

Fiber Optic Ports and Optical Safety

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

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

**Warning**

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

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

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

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

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

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

Cable Routing for LAN Systems

Extreme Networks equipment meets the requirements for LAN system equipment.

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

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

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

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

**Caution**

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

**Warning**

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

Install Power Supply Units and Connect Power

For the ratings and power input requirements of each power supply unit, see "Technical Specifications" or the data sheet for the power supply at www.extremenetworks.com.

**Warning**

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

When you install any power supply:

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

When you install DC power supplies or connect DC power:

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

**Note**

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

**Warning**

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

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

Select Power Supply Cords

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

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

**Note**

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

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

Battery Notice



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

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



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

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

Battery Warning - Taiwan

警告

如果更換不正確之電池型式會有爆炸的風險，
請依製造商說明書處理用過之電池。

EMC Warnings

Taiwan BSMI Warning

警告:為避免電磁干擾,本產品不應安裝
或使用於住宅環境。

China CQC Warning

警告:在居住环境中，运行此设备可能
会造成无线电干扰。

Japan (VCCI Class A)



Warning

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

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

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