



7830 Series Installation Guide

Setup and Configuration

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Table of Contents

| | |
|---|-----------|
| Introduction to the 7830 Series Installation Guide..... | vii |
| Text Conventions..... | vii |
| Documentation and Training..... | ix |
| Open Source Declarations..... | ix |
| Training..... | ix |
| Send Feedback..... | ix |
| Help and Support..... | x |
| Subscribe to Product Announcements..... | x |
| Overview..... | 12 |
| Management..... | 12 |
| Cooling..... | 12 |
| Power Supplies..... | 13 |
| Expansion Modules..... | 13 |
| Operating Temperatures..... | 13 |
| Feature Licensing..... | 13 |
| 7830 Series Switch Features..... | 13 |
| Port Subdivisions..... | 15 |
| Manage Your Switch..... | 17 |
| Connect to Your Switch..... | 17 |
| Configure and Operate Your Switch..... | 17 |
| Fans Modules for Use with Your Switch..... | 19 |
| Precautions Specific to Fan Modules..... | 19 |
| Fan Modules..... | 20 |
| Power Supplies for Use with Your Switch..... | 21 |
| Precautions Specific to Power Supply Modules..... | 22 |
| 2400 W AC Power Supplies..... | 22 |
| 2400 W DC Power Supplies..... | 23 |
| Expansion Modules for Use with Your Switch..... | 24 |
| Versatile Interface Modules for the 7830 Series Switch..... | 24 |
| 7830-VIM-8DE Versatile Interface Module..... | 24 |
| 7830-VIM-16CE Versatile Interface Module..... | 25 |
| 7830-VIM-24CE Versatile Interface Module..... | 25 |
| 7830-VIM-24YE Versatile Interface Module..... | 26 |
| Site Preparation..... | 27 |
| Plan Your Site..... | 27 |
| Operating Environment Requirements..... | 28 |
| Meet Building and Electrical Codes..... | 28 |
| Set Up the Wiring Closet..... | 29 |

| | |
|--|-----------|
| Control the Temperature..... | 30 |
| Control the Humidity Level..... | 31 |
| Protect Your System from ESD (Electrostatic Discharge)..... | 31 |
| Rack Specifications and Recommendations..... | 31 |
| Mechanical Recommendations for the Rack..... | 32 |
| Ground the Rack..... | 32 |
| Provide Adequate Space for the Rack..... | 32 |
| Secure the Rack..... | 33 |
| Evaluate and Meet Cable Requirements..... | 33 |
| Label Cables and Keep Accurate Records..... | 34 |
| Install Cable..... | 34 |
| Use RJ45 Connector Jackets..... | 36 |
| Prevent Radio Frequency Interference (RFI)..... | 37 |
| Meet Power Requirements..... | 37 |
| Power Supply Requirements..... | 37 |
| Power Cord Requirements..... | 38 |
| UPS (Uninterruptible Power Supply) Requirements..... | 38 |
| Follow Applicable Industry Standards..... | 39 |
| Install Your Switch..... | 40 |
| Safety Considerations for Installation..... | 41 |
| What You Will Need for the Installation..... | 41 |
| Attach the Switch to a Rack or Cabinet..... | 42 |
| Four-Post Rack Mount..... | 42 |
| Two-Post Rack Mount..... | 46 |
| Install Expansion Modules..... | 47 |
| Connect Network Interface Cables..... | 48 |
| Install Optional Components..... | 48 |
| Pluggable Transceiver Modules..... | 48 |
| Optical Cables..... | 48 |
| Install Internal Power Supplies..... | 48 |
| Turn on the Switch..... | 49 |
| Connect AC Power..... | 49 |
| Connect DC Power..... | 49 |
| Activate and Verify the Switch..... | 51 |
| Connect to a Management Console..... | 51 |
| Log In for the First Time on Fabric Engine..... | 51 |
| Configure the Switch's IP Address for the Management VLAN..... | 52 |
| Remove and Replace Components..... | 53 |
| Remove a Switch from a Rack..... | 53 |
| Remove a Device from a Four-Post Rack..... | 53 |
| Remove a Switch from a Two-Post Rack..... | 55 |
| Replace Power Supplies..... | 55 |
| Power Supply Airflow Direction Requirements..... | 56 |
| Replace a Power Supply..... | 56 |
| Replace Fan Modules..... | 60 |
| Fan Airflow Direction Requirements..... | 60 |
| Replace a Fan Module..... | 61 |
| Replace Expansion Modules..... | 61 |

| | |
|--|-----------|
| Replace Versatile Interface Modules..... | 62 |
| Monitor the Switch..... | 64 |
| System Status LEDs..... | 64 |
| 1G/10G SFP+ Management Port LED..... | 65 |
| 100M/1G/10G RJ45 Management Port LEDs..... | 66 |
| QSFP28 Advanced Services Management Port LED..... | 67 |
| Port Status LEDs..... | 67 |
| Power Supply LEDs..... | 70 |
| Versatile Interface Module Port LEDs..... | 72 |
| Technical Specifications..... | 73 |
| 7830 Series Technical Specifications..... | 73 |
| External Interfaces..... | 74 |
| Weights and Dimensions of Versatile Interface Modules (VIMs)..... | 74 |
| Weights and Dimensions of Accessories..... | 75 |
| Console Cables..... | 75 |
| Acoustic Noise and Fan Speed..... | 76 |
| CPU/Memory..... | 76 |
| Mean Time Between Failures..... | 77 |
| Power Specifications..... | 77 |
| Power Supply Specifications..... | 77 |
| Power and Heat Dissipation..... | 78 |
| Environmental..... | 78 |
| Standards..... | 79 |
| EMI/EMC Standards..... | 79 |
| IEEE 802.3 Media Access Standards..... | 80 |
| Power Cord Requirements for AC-Powered Switches and AC Power Supplies..... | 80 |
| Console Connector Pinouts..... | 81 |
| Safety and Regulatory Information..... | 84 |
| Considerations Before Installing..... | 85 |
| General Safety Precautions..... | 85 |
| Maintenance Safety..... | 86 |
| Fiber Optic Ports and Optical Safety..... | 86 |
| GBIC, SFP (Mini-GBIC), QSFP+, XENPAK, and XFP Regulatory Compliance..... | 87 |
| Cable Routing for LAN Systems..... | 87 |
| Install Power Supply Units and Connect Power..... | 88 |
| Select Power Supply Cords..... | 89 |
| Battery Notice..... | 89 |
| Battery Warning - Taiwan..... | 90 |
| EMC Warnings..... | 90 |
| Taiwan BSMI Warning..... | 90 |
| China CQC Warning..... | 90 |
| Japan (VCCI Class A)..... | 90 |
| Korea EMC Statement..... | 91 |



Abstract

This installation guide for the Extreme Networks 7830 Series switches provides technical documentation for network administrators deploying high-density 100G and 400G enterprise core and data center equipment. The 7830-32CE-8DE features thirty-two 100G QSFP28 ports and eight 400G QSFP-DD ports in a 2RU form factor, with two VIM expansion slots for additional port options. Technical specifications include Intel Snow Ridge 8-core processor, expandable DDR4 memory to 32GB, hot-swappable 2400W AC/DC power supplies with N+1 redundancy, and configurable airflow directions. The guide covers site preparation, four-post and two-post rack mounting procedures, power distribution requirements, environmental operating conditions (0°C to 40°C), cable management, and port channelization capabilities. Management options include ExtremeCloud IQ, web-based GUI, and CLI access through serial console or Ethernet management ports with Fabric Engine operating system support. Comprehensive sections detail LED status indicators, safety precautions, regulatory compliance certifications, troubleshooting procedures, and component replacement instructions for proper installation and maintenance of the switching platform.



Introduction to the 7830 Series 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 *Fabric Engine User Guide* and the *Fabric Engine Command References* for your version of the Fabric Engine operating system for information about configuring Extreme Networks switches.



Note

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

Read the following topics to learn about:

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

Text Conventions

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

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

Table 1: Notes and warnings






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

Table 2: Text

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

Table 3: Command syntax

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

Table 3: Command syntax (continued)

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

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[Current Product Documentation](#)

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[Extreme Optics Compatibility](#)

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

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

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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.



Overview

[7830 Series Switch Features](#) on page 13

The 7830 Series offers high density 100G and 400G interfaces and in a compact 2RU fixed modular form factor for enterprise core and data center networks. The switch features native thirty-two 100G QSFP28 and eight 400G QSFP-DD fixed ports. The 7830 Series also provides two expansion slots for virtual interface modules (VIMs). The VIMs add flexible port expansion with twenty-four 10G/25G, sixteen and twenty-four 100G, and eight 400G port options. Any combination of the four VIMs can be installed in the two expansion slots. The 7830 Series also supports AC and DC power options with a choice of back-to-front or front-to-back airflow.

Management

The switch supports connections 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 51.

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



Note

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

Cooling

Each switch is cooled by hot-swappable field replaceable fan modules. The switch supports both front-to-back and back-to-front airflow for switch cooling. Switch fans are not responsible for cooling the power supplies; power supplies have integrated cooling fans that operate independently of the switch fan. Fan modules are ordered separately for the base 7830-32CE-8DE switch. The fans are N+1 redundant.

For more information about the fan modules used in the switch, see [Fans 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 7830-32CE-8DE switch. 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.

Expansion Modules

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

Versatile Interface Modules (VIMs)

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

For more information, see [Expansion Modules for Use with Your Switch](#) on page 24.

Operating Temperatures

All switches 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 Fabric Engine licensing, see the Licensing chapter in the *Fabric Engine User Guide* for your version of the Fabric Engine operating system.

7830 Series Switch Features

The 7830 Series switch includes the following:

7830-32CE-8DE

The 7830-32CE-8DE base switch includes two unpopulated modular power supply slots, four unpopulated fan slots, and two unpopulated versatile interface modules (VIM) slots. Fan modules and power supply modules must be ordered separately.

The front panel of the switch includes:

- 1 = 100M/1G/10G RJ45 out-of-band management ports
- 2 = System status LEDs
- 3 = RJ-45 Serial console port
- 4 = Global Navigation Satellite System for GPS signal
- 5 = Mode button and channel selection LEDs
- 6 = Advanced services port for the processor to offload to external appliance

- 7 = Time of Day (TOD), 1PPS signal inputs
- 8 = HD-BNC connector for Time synchronization, 1PPS and 10MHz
- 9 = USB Type A port
- 10 = VIM slots (unpopulated)
- 11 = 10Gb/25Gb/40Gb/100Gb/400Gb MACsec capable ports
- 12 = 10Gb/25Gb/40Gb/100Gb MACsec capable ports
- 13 = 1G/10G SFP+ out-of-band management port

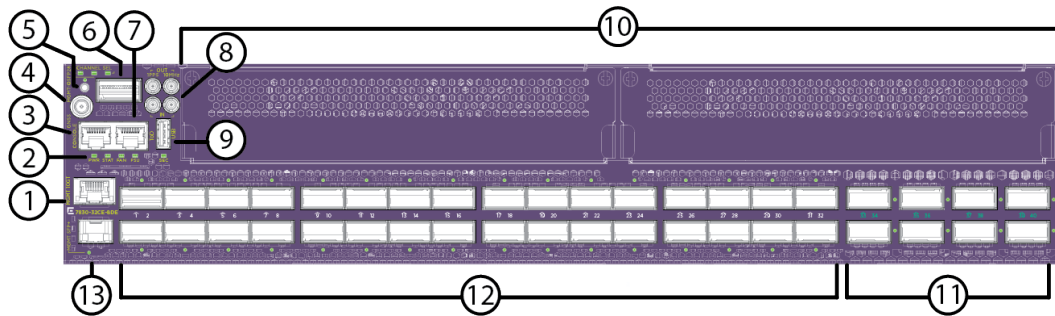


Figure 1: 7830 Series Front Panel

The rear panel of the switch includes:

- 1 = Grounding lug
- 2 = 4 x Fan modules
- 3 = 2 x Modular power supplies

Airflow is front-to-back if the power supplies and fans have red tabs. Airflow is back-to-front if the power supplies and fans have blue tabs.

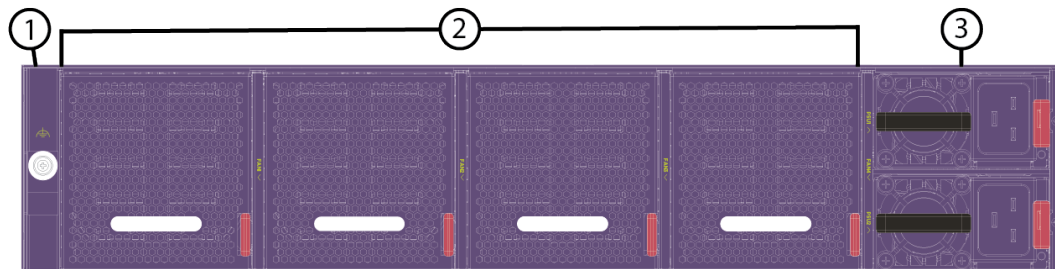


Figure 2: 7830 Series Rear Panel with Front-To-Back Airflow

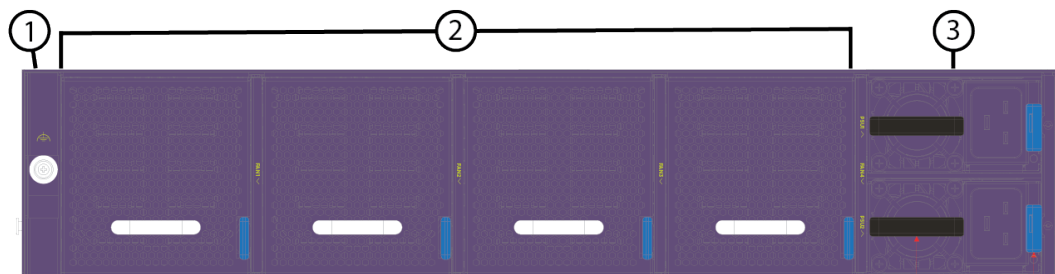


Figure 3: 7830 Series Rear Panel with Back-To-Front Airflow



Port Subdivisions

On some Extreme Networks switch models, you can configure QSFP28, QSFP56-DD, SFP56-DD, or SFP28 ports either as single ports or as multiple, channelized ports. In a channelized port, with appropriate cabling, the original physical port can accommodate multiple data lanes at lower bandwidths. Ports are not channelized by default.



Note

Only odd numbered ports can be channelized. When an odd numbered port is channelized the next even numbered port is not available for data traffic. For example, if port 1 is channelized port 2 is not available.

The following options are available:

Table 4: Port Channelization

| Device | Port Bandwidth | Port Channels |
|---|----------------|--|
| (all models) QSFP28 (ports 1 - 32) | 100 Gb | One of the following: <ul style="list-style-type: none">• One 100 Gb port (default)• One 40 Gb port• Four 25 Gb ports• Four 10 Gb ports• One 25 Gb port w/ QSA adapter• One 10 Gb port w/ QSA adapter |
| (all models) QSFP56-DD (ports 1 - 8) | 400 Gb | One of the following: <ul style="list-style-type: none">• One 400 Gb port (default)• Four 100 Gb ports• One 100 Gb ports• One 40 Gb ports• Four 25 Gb ports• Four 10 Gb ports |

Table 4: Port Channelization (continued)

| Device | Port Bandwidth | Port Channels |
|--|----------------|---|
| 7830-VIM-8DE QSFP56-DD (ports 1 - 8) | 400 Gb | One of the following: <ul style="list-style-type: none"> • One 400 Gb port (default) • Four 100 Gb ports • One 100 Gb ports • One 40 Gb ports • Four 25 Gb ports • Four 10 Gb ports |
| 7830-VIM-16CE QSFP28 (ports 1 - 16) | 100 Gb | One of the following: <ul style="list-style-type: none"> • One 100 Gb port (default) • One 40 Gb port • Four 25 Gb ports • Four 10 Gb ports • One 25 Gb port w/ QSA adapter • One 10 Gb port w/ QSA adapter |
| 7830-VIM-24CE SFP56-DD (ports 1 - 24) | 100 Gb | One of the following: <ul style="list-style-type: none"> • One 100 Gb port (default) • One 25 Gb port • One 10 Gb port |
| 7830-VIM-24YE SFP28 (ports 1 - 24) | 25 Gb | One of the following: <ul style="list-style-type: none"> • One 25 Gb port (default) • One 10 Gb port |

In the port range 1 - 32, a group of four consecutive ports must operate at the same speed from either of the following groups:

- 10 Gb or 40 Gb or 4x10 Gb
- 25 Gb or 100 Gb or 4x25 Gb

For example, using the first speed group, ports 1 - 4 can all operate as 10 Gb or 40 Gb but not a mix of 10 Gb and 40 Gb. Because of channelization restrictions, ports 1 and 3 can only be channelized as 4x10 Gb.

For information about configuring channelized ports, see the *Fabric Engine Command References* for your version of the Fabric Engine operating system.



Manage Your Switch

Each switch can be flexibly managed through the cloud, the network, or the command-line interface (CLI), either remotely or locally.

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 one of the Ethernet management ports to connect the system to an out-of-band management network to manage the switch. The switch has dual management ports, both of which are connected to a switch so that the CPU and BMC can share the port. The primary port is marked MGMT SFP+. The secondary port is marked MGMT 10GT. The SFP+ port requires an SFP (mini-GBIC) transceiver module. An Ethernet management port provides dedicated remote access to the switch using TCP/IP. The switch uses an Ethernet management port only for host operation, not for switching or routing.

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

The Ethernet management ports are located on the front panel of the switch. The RJ45 management port supports 100Mbps/1/10Gbps speeds; the SFP+ management port supports 1/10Gbps speeds.

For switch connection details, see [Connect to a Management Console](#) on page 51.

Configure and Operate Your Switch

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

ExtremeCloud IQ or ExtremeCloud IQ Site Engine

ExtremeCloud IQ is a cloud-based enterprise network management application. It provides centralized management, monitoring, and control of network devices from the cloud. It is entirely cloud-hosted, meaning it does not require on-premises infrastructure for management.

ExtremeCloud IQ - Site Engine is an on-premises solution that extends the capabilities of ExtremeCloud IQ to manage a broader range of devices and provides additional features for comprehensive network management. ExtremeCloud IQ - Site Engine provides end-to-end network management, task automation, real-time analytics, and service assurance.

For more information, see [ExtremeCloud IQ](#).

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

The command line interface (CLI) is a powerful tool for managing and configuring switches and network settings. The CLI interface can be accessed through the web-based GUI, or through Telnet, Secure Shell (SSH2), or SNMP using an SNMP manager. The web server must be enabled in the operating system on the switch in order to use the web-based GUI.



Fans Modules for Use with Your Switch

[Fan Modules](#) on page 20

The switch is designed to run with hot-swappable field replaceable fan modules that provide the cooling needed for the switch to operate. The switch can include up to four fan modules. Each fan module contains two fans. 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. The switch supports both front-to-back and back-to-front airflow for switch cooling. 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 the switch:

- Part number XN-FAN-007-FB provides front-to-back airflow for switch cooling.
- Part number XN-FAN-007-BF provides back-to-front airflow for switch cooling.

Airflow is front-to-back if the power supplies and fans have red tabs. Airflow is back-to-front if the power supplies and fans have blue tabs.

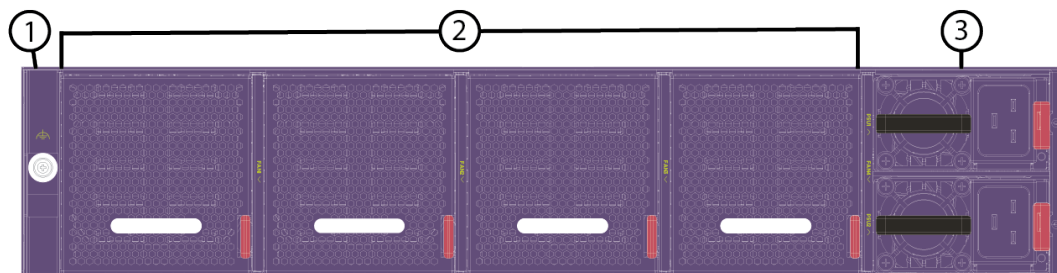


Figure 4: 7830 Series Rear Panel with Front-To-Back Airflow

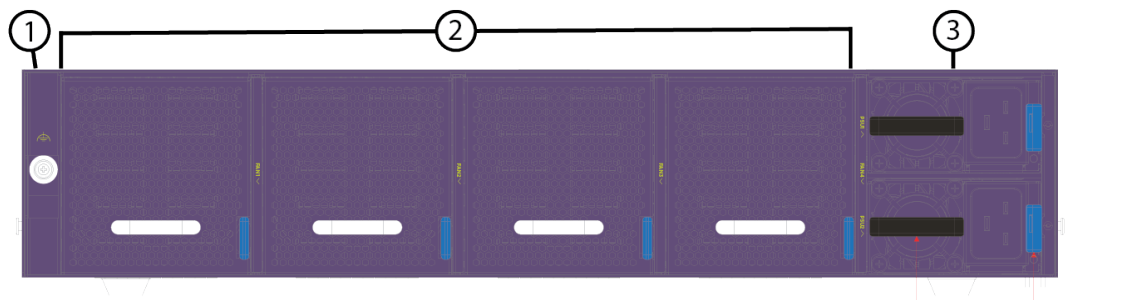


Figure 5: 7830 Series Rear Panel with Back-To-Front Airflow

Fan modules are ordered separately for the base 7830-32CE-8DE switch.

For information on installing or replacing a fan module, see [Replace Fan Modules](#) on page 60.



Power Supplies for Use with Your Switch

[2400 W AC Power Supplies](#) on page 22

[2400 W DC Power Supplies](#) on page 23

The switch is designed to run with one replaceable 2400 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 2400 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 2400 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.

Airflow is front-to-back if the power supplies and fans have red tabs. Airflow is back-to-front if the power supplies and fans have blue tabs.

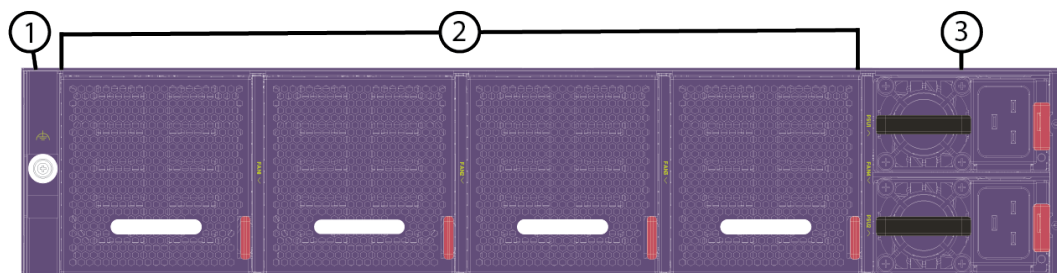


Figure 6: 7830 Series Rear Panel with Front-To-Back Airflow

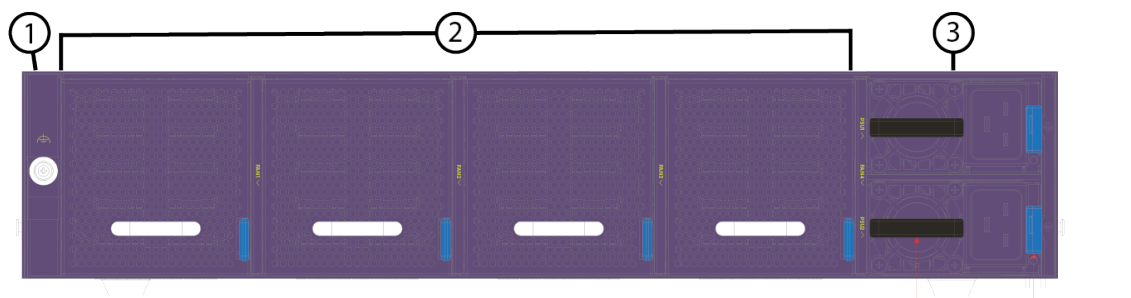


Figure 7: 7830 Series Rear Panel with Back-To-Front Airflow

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.

2400 W AC Power Supplies

Two 2400 W AC power supply options, with front-to-back or back-to-front airflow, are available for the switch:

- Part number XN-ACPWR-2400W-FB provides 2400W AC power with front-to-back airflow for power supply cooling.
- Part number XN-ACPWR-2400W-BF provides 2400W AC power with back-to-front airflow for power supply cooling.

Power supplies are ordered separately for the base 7830-32CE-8DE switch.

The 2400 W AC power supply has a (C20) power inlet that requires a (C19) power cord.

**Note**

AC power input cords are not provided with AC power supplies. You can order an appropriate cord from Extreme Networks or from your local supplier. The power cord must meet the requirements listed in [Power Cord Requirements for AC-Powered Switches and AC Power Supplies](#) on page 80.

For information on installing or replacing an AC power supply, see [Replace Power Supplies](#) on page 55.

LEDs on the 2400 W AC power supply provide information on the unit's operational status. See [Power Supply LEDs](#) on page 70 for details.

2400 W DC Power Supplies

Two 2400 W DC power supply options, with front-to-back or back-to-front airflow, are available for the switch:

- Part number XN-DCPWR-2400W-FB provides 2400W DC power with front-to-back airflow.
- Part number XN-DCPWR-2400W-BF provides 2400W DC power with back-to-front airflow.

Power supplies are ordered separately for the base 7830-32CE-8DE switch.

The 2400 W DC power supply requires a Tyco: 2204535-3 type connector.

**Note**

DC power input cords are provided with DC power supplies.

For information on installing or replacing a DC power supply, see [Replace Power Supplies](#) on page 55.

LEDs on the 2400 W DC power supply provide information on the unit's operational status. See [Power Supply LEDs](#) on page 70 for details.



Expansion Modules for Use with Your Switch

[Versatile Interface Modules for the 7830 Series Switch](#) on page 24

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

- You can install versatile interface modules (VIMs) in the dedicated slots in the front of the switch. If no module is installed, the option slot is covered by a blank panel. They provide dedicated high speed ports.

Versatile Interface Modules for the 7830 Series Switch

You can install versatile interface modules (VIM) in the dedicated slots in the front panel of the 7830 Series switch to provide dedicated high speed ports. The front panel of every 7830 Series switch provides two slots to install the following:

- 7830-VIM-8DE versatile interface module



Note

Not supported in Fabric Engine 9.3.

- 7830-VIM-16CE versatile interface module
- 7830-VIM-24CE versatile interface module



Note

Not supported in Fabric Engine 9.3.

- 7830-VIM-24YE versatile interface module

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

See [Versatile Interface Module Port LEDs](#) on page 72 for VIM LED details.

7830-VIM-8DE Versatile Interface Module

The 7830-VIM-8DE versatile interface module provides eight 10Gb/25Gb/50Gb/100Gb/200Gb/400Gb MACsec capable QSFP56-DD ports.

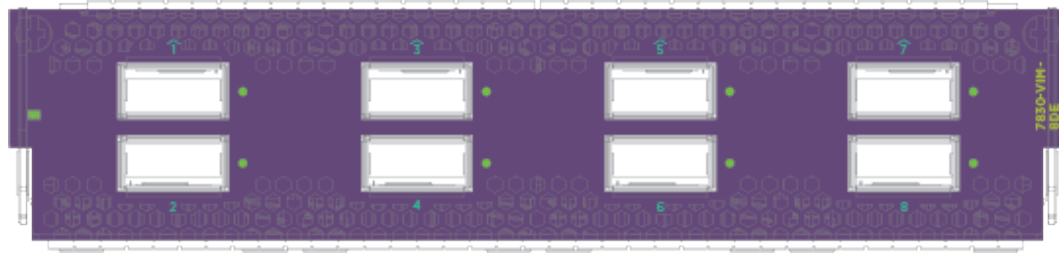


Figure 8: 7830-VIM-8DE Versatile Interface Module

Table 5: Port Numbers for Ports on the 7830-VIM-8DE Module

| VIM Slot | VIM Slot Number | VIM Port Numbers |
|-------------|-----------------|------------------|
| First slot | 1 | 1/1 - 1/8 |
| Second slot | 2 | 2/1 - 2/8 |



Note

Not supported in Fabric Engine 9.3.

7830-VIM-16CE Versatile Interface Module

The 7830-VIM-16CE Versatile Interface Module provides sixteen 10Gb/25Gb/40Gb/50Gb/100Gb MACsec capable QSFP28 ports.



Figure 9: 7830-VIM-16CE Versatile Interface Module

Table 6: Port Numbers for Ports on the 7830-VIM-16CE Module

| VIM Slot | VIM Slot Number | VIM Port Numbers |
|-------------|-----------------|------------------|
| First slot | 1 | 1/1 - 1/16 |
| Second slot | 2 | 2/1 - 2/16 |

7830-VIM-24CE Versatile Interface Module

The 7830-VIM-24CE Versatile Interface Module provides twenty-four 10Gb/25Gb/50Gb/100Gb MACsec capable SFP56-DD ports.

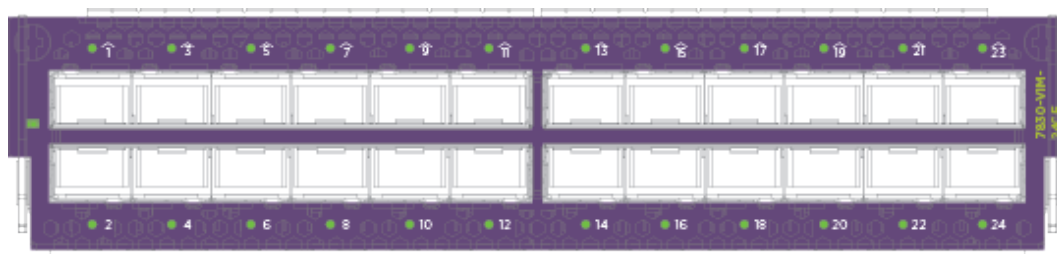


Figure 10: 7830-VIM-24CE Versatile Interface Module

Table 7: Port Numbers for Ports on the 7830-VIM-24CE Module

| VIM Slot | VIM Slot Number | VIM Port Numbers |
|-------------|-----------------|------------------|
| First slot | 1 | 1/1 - 1/24 |
| Second slot | 2 | 2/1 - 2/24 |



Note

Not supported in Fabric Engine 9.3.

7830-VIM-24YE Versatile Interface Module

The 7830-VIM-24YE Versatile Interface Module provides twenty-four 10Gb/25Gb MACsec capable SFP28 ports.

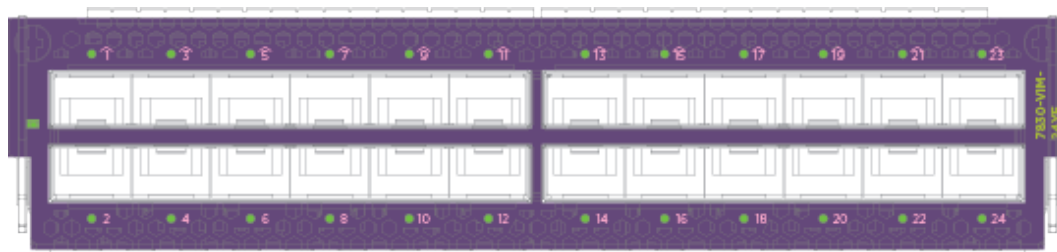


Figure 11: 7830-VIM-24YE Versatile Interface Module

Table 8: Port Numbers for Ports on the 7830-VIM-24YE Module

| VIM Slot | VIM Slot Number | VIM Port Numbers |
|-------------|-----------------|------------------|
| First slot | 1 | 1/1 - 1/24 |
| Second slot | 2 | 2/1 - 2/24 |



Site Preparation

[Plan Your Site](#) on page 27

[Operating Environment Requirements](#) on page 28

[Rack Specifications and Recommendations](#) on page 31

[Evaluate and Meet Cable Requirements](#) on page 33

[Meet Power Requirements](#) on page 37

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

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

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



Note

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

Plan Your Site

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

1. Meeting site requirements.

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

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

2. Evaluating and meeting cable requirements.

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

3. Meeting power requirements.

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

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

Operating Environment Requirements

Verify that your site meets all environmental and safety requirements.

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

Meet Building and Electrical Codes

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

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

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

The organizations listed in [Table 9](#) are authorities on electrical codes.

Table 9: 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 31 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 10](#) 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 10: Thermal Shutdown and Restart Behavior

| Switch Model(s) | Behavior |
|-----------------|--|
| All switches | <p>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.</p> <p>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.</p> |

Control the Humidity Level

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

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

Protect Your System from ESD (Electrostatic Discharge)

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

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

Check the appropriateness of floor mats and flooring.

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

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

Rack Specifications and Recommendations

Racks should conform to conventional standards.

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

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

Mechanical Recommendations for the Rack

Use equipment racks that meet the following mechanical recommendations:

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

Ground the Rack

The rack must be properly grounded.

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

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

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

AC-powered switches do not need separate chassis grounding.

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



Note

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

Provide Adequate Space for the Rack

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

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

**Warning**

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

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

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

Secure the Rack

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

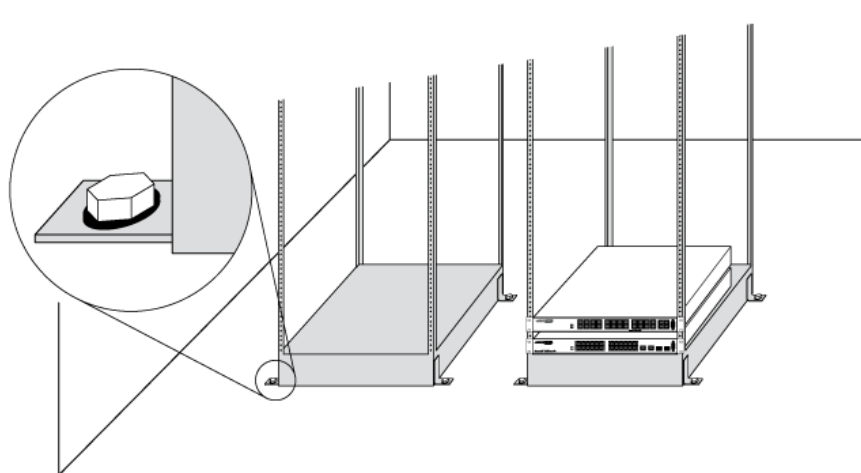


Figure 12: Properly Secured Rack

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 13](#) on page 35.
- 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.

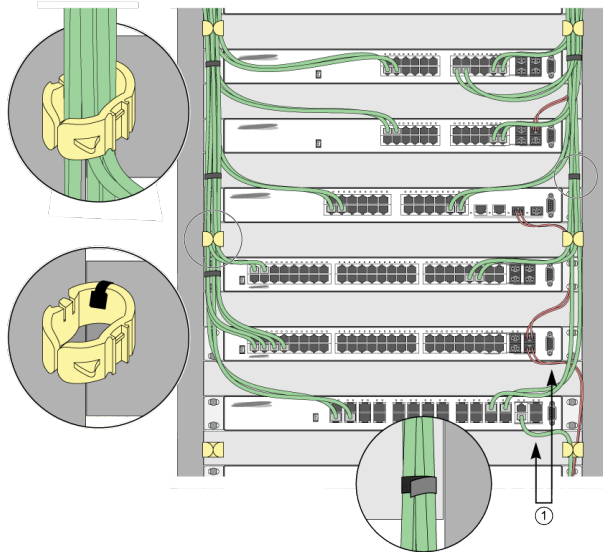


Figure 13: Properly Installed and Bundled Cable

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 14](#).



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.

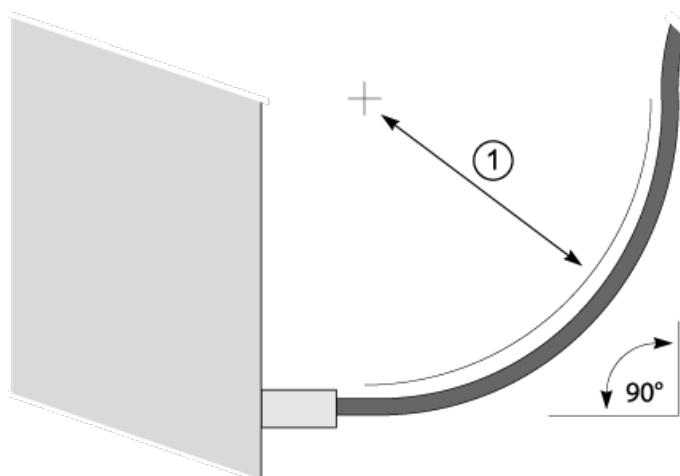


Figure 14: Bend Radius for Fiber Optic Cable

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.

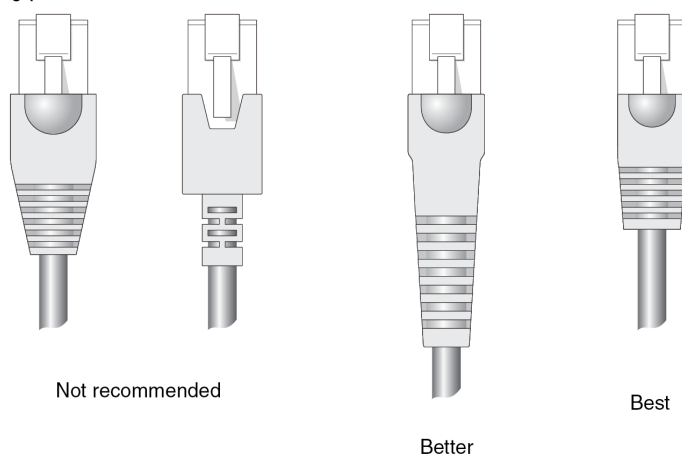
Use RJ45 Connector Jackets

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



SPQ_001

Figure 15: RJ45 Connector Jacket Types

Prevent Radio Frequency Interference (RFI)

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

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

To prevent RF interference, avoid the following situations:

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

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

Meet Power Requirements

Observe the following requirements and precautions for powering your hardware.

Power Supply Requirements

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

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

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

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

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

Power Cord Requirements

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

UPS (Uninterruptible Power Supply) Requirements

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

A UPS traditionally can perform the following functions:

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

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

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

Select a UPS

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

- What are the amperage requirements?
- What is the longest potential time period that the UPS would be required to supply backup power?
- Where will the UPS be installed?
- What is the maximum transition time that the installation will allow? (See [Provide a Suitable UPS Transition Time](#) on page 39.)

**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 41
- [What You Will Need for the Installation](#) on page 41
- [Attach the Switch to a Rack or Cabinet](#) on page 42
- [Install Expansion Modules](#) on page 47
- [Connect Network Interface Cables](#) on page 48
- [Install Optional Components](#) on page 48
- [Install Internal Power Supplies](#) on page 48
- [Turn on the Switch](#) on page 49

Before you attempt to install or remove an Extreme Networks switch, read the precautions in [Safety Considerations for Installation](#) on page 41.

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 41.
2. Install the switch in the rack. See [Attach the Switch to a Rack or Cabinet](#) on page 42.
3. Install expansion modules. See [Install Expansion Modules](#) on page 47.
4. Install optional components: optical transceivers and cables. See the instructions in [Install Optional Components](#) on page 48.
5. 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 48.



Note

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

6. Connect network interface cables. See [Connect Network Interface Cables](#) on page 48.
7. Power up the switch. See [Turn on the Switch](#) on page 49.
8. Perform initial network connection and configuration. See [Activate and Verify the Switch](#) on page 51.

Safety Considerations for Installation

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

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



Warning

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

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

Do not cover vents that would restrict airflow.



Note

See [Safety and Regulatory Information](#) on page 84 for additional safety and regulatory information. See [Technical Specifications](#) on page 73 for additional information regarding regulatory compliance certifications.

What You Will Need for the Installation

Ensure that you have followed the guidance in [Site Preparation](#) on page 27, and ensure that you have the appropriate people and tools on hand.

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

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

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

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

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

- Screwdriver for securing the rack mounting screws.
- #2 Phillips magnetic screwdriver to attach bracket screws that are provided with the switch.
- AC power cord. For switches with removable AC power supplies, a separate power cord is needed for each installed power supply. The cord must meet the

requirements listed in [Power Cord Requirements for AC-Powered Switches and AC Power Supplies](#) on page 80.

- ESD-preventive wrist strap for installing optional ports at the back of the switch.

Attach the Switch to a Rack or Cabinet

The 7830 Series 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 (part number XN-4P-RKMT301). The kit includes:
 - 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)

The four-post rack mount kit can be used to front-mount or rear-mount the switch to the rack.

- Two-post rack, using mounting brackets (part number XN-2P-RKMT300) to attach the front or the middle of the switch to the posts (not provided). The two-post rack mounting kit can be ordered separately.



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

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.

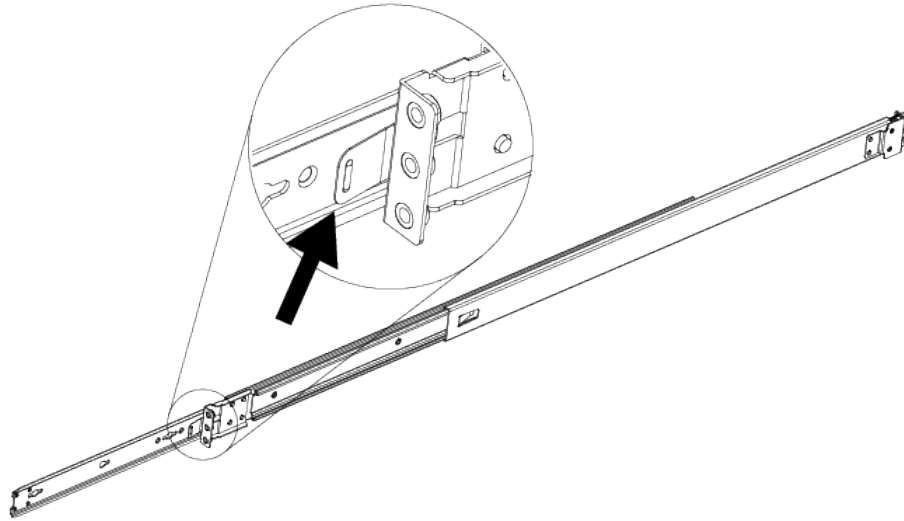


Figure 16: Separating the Inner Sliding Rails

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

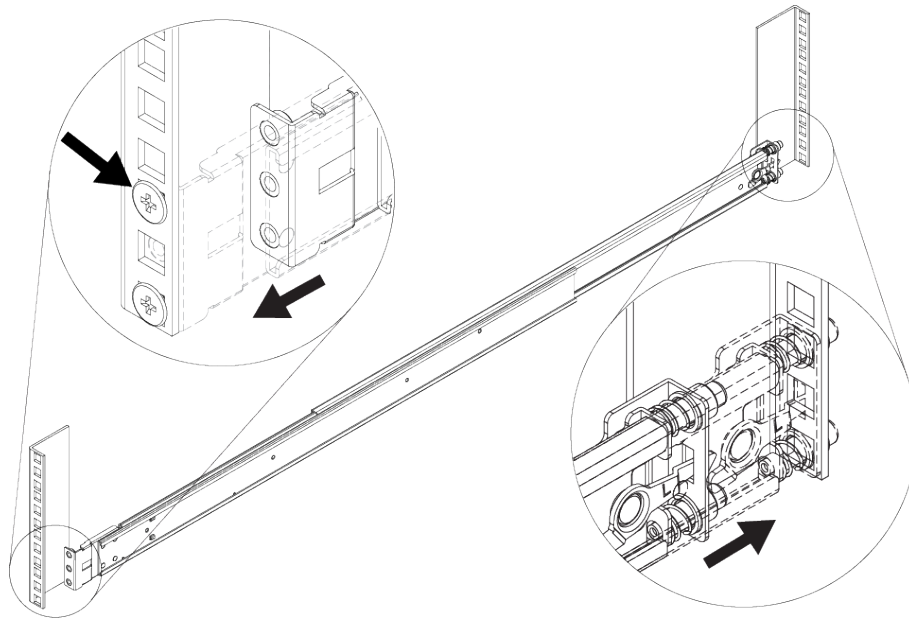


Figure 17: Attaching the Outer Rail

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 the either the front or the rear panel of the unit and continue to step 4 on page 45.

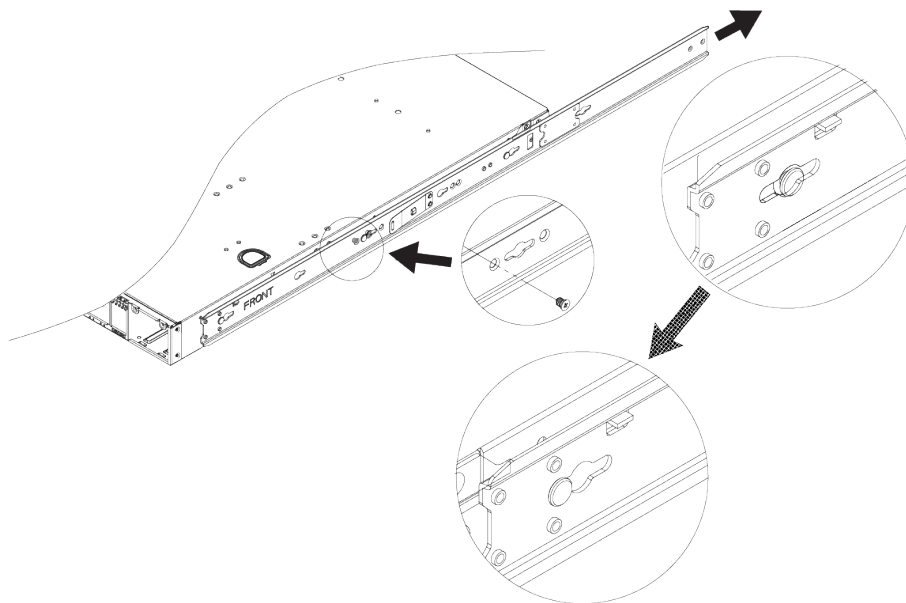


Figure 18: Front Installation: Attaching the Inner Rail

- 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.

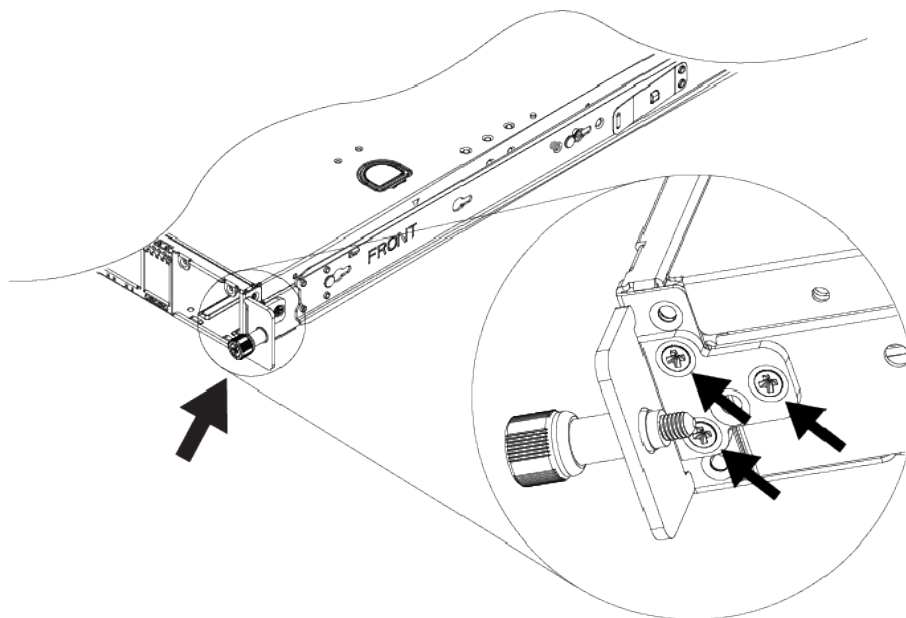


Figure 19: Front Installation: Attaching a Rack Ear

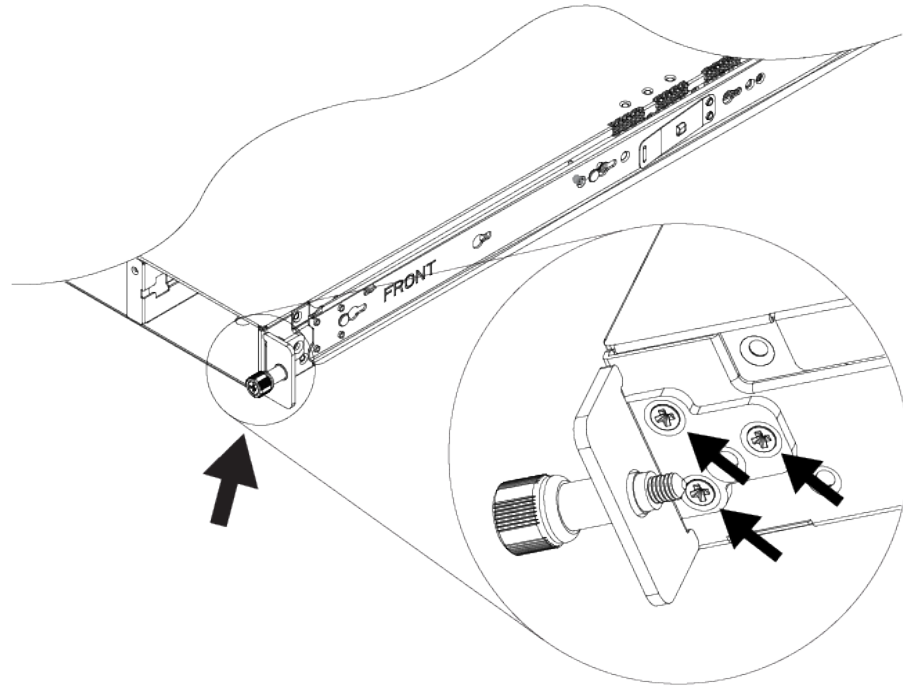


Figure 20: Rear Installation: Attaching a Rack Ear

4. Repeat steps 2 on page 43 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.

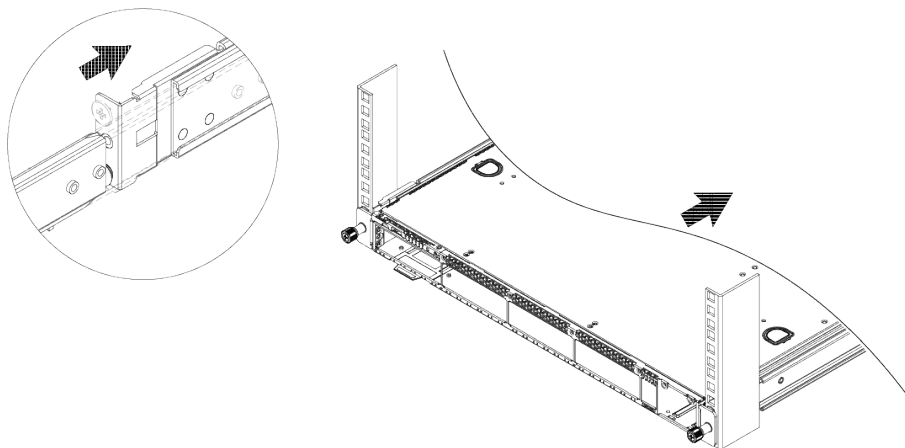


Figure 21: Front Installation: Inserting the Device

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

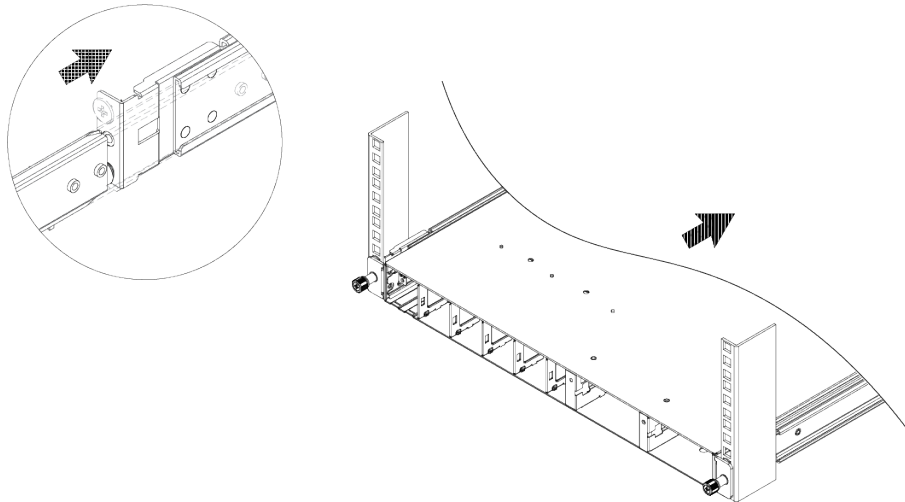


Figure 22: Rear Installation: Inserting the Device

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

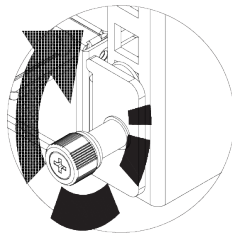


Figure 23: Secure the Device

Two-Post Rack Mount

The switch supports flush-mounting and mid-mounting for 3" & 6" wide rack posts. The side of the switch has different sets of holes for attaching mounting brackets in either configuration.

Use the following instructions to install the switch in a two-post rack.

1. Set a mounting bracket against the switch housing on one side of the switch.

Set the flange (ear) flush with the front of the switch, facing the front, for a flush-mount.

Set the flange (ear) slightly more than halfway between the front and back of the switch, for a mid-mount.

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

- [Figure 24](#) shows a flush-mount configuration using a short mounting bracket.
- [Figure 25](#) shows a mid-mount configuration using a short mounting bracket.

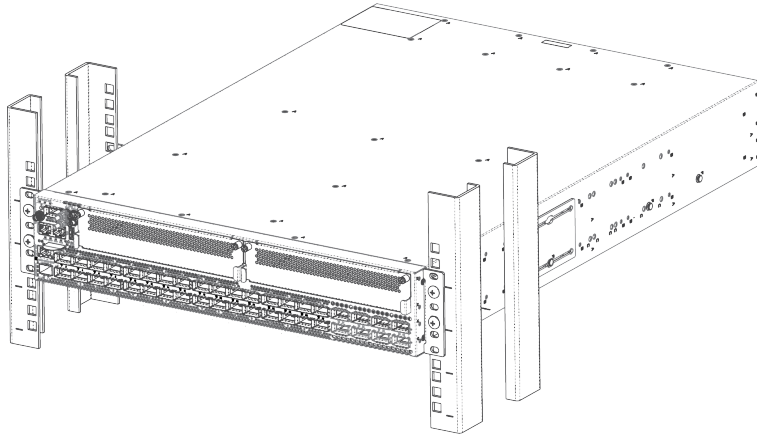


Figure 24: Flush-Mount: Attaching Short Mounting Brackets

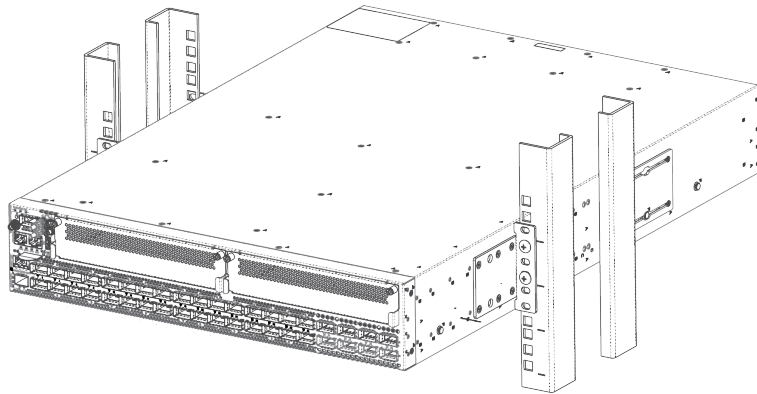


Figure 25: Mid-Mount: Attaching Short Mounting Brackets

2. Use the small bracket-mounting screws (provided) to secure the bracket to the switch housing.

If you are using screws other than the screws that are provided, ensure that the threaded length of the screws is within 4 to 5 cm.

3. Repeat step 1 and step 2 to attach the other bracket to the other side of the switch.
4. Secure the mounting bracket flanges to the rack, using screws that are appropriate for the rack. (Rack-mounting screws are not provided.)

If the switch comes with installed power supplies, skip to the topic: [Turn on the Switch](#) on page 49.

If the switch does not have any installed power supplies, install one or two power supplies using the instructions in [Install Internal Power Supplies](#) on page 48.

Install Expansion Modules

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

modules (VIMs). For installation instructions, see [Replace Expansion Modules](#) on page 61.

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.

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

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

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

For installation instructions, see [Replace Power Supplies](#) on page 55.

Turn on the Switch

Use the following instructions to turn on the switch



Note

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

Connect AC Power

An AC power cord is not included with the AC power supply. You can purchase AC power cords for use in the US and Canada from Extreme Networks or from your local supplier. The cord must meet the requirements listed in [Power Cord Requirements for AC-Powered Switches and AC Power Supplies](#) on page 80.

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



Note

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

If the power supply LEDs do not turn green, refer to [Power Supply LEDs](#) on page 70 for troubleshooting information.

When the power supply LED has turned green, follow the instructions in [Activate and Verify the Switch](#) on page 51.

Connect DC Power

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



Note

DC power input cords are provided with DC power supplies.

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

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



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

If the power supply LEDs do not turn green, refer to [Power Supply LEDs](#) on page 70 for troubleshooting information.

When the power supply LED has turned green, follow the instructions in [Activate and Verify the Switch](#) on page 51.



Activate and Verify the Switch

[Connect to a Management Console](#) on page 51

[Log In for the First Time on Fabric Engine](#) on page 51

[Configure the Switch's IP Address for the Management VLAN](#) on page 52

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

Log In for the First Time on Fabric Engine

Onboard your switch with ExtremeCloud™. Log in or create your XIQ administrator account in order to select your switch operating system with XIQ at <https://extremecloudiq.com>

Before logging in, verify that the switch LEDs are on (solid green or blinking green) and that it is connected to a management console as described in [Connect to a Management Console](#) on page 51.

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

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

Be sure that your serial connection is set properly:

- Baud rate: 115200
- Data bits: 8

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

For example:

```
login: rwa
```

When prompted for the password, enter `rwa`.

When you are logged in with the role-based authentication level of `rwa`, you can configure the login and password values for the other role-based authentication levels.

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.

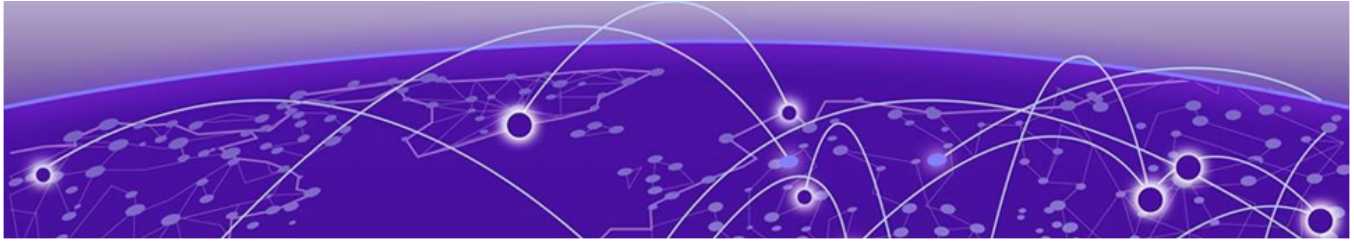
1. Assign a name, IP address, and default subnetwork mask for the VLAN as shown in the following example:

```
configure vlan vlan_name ipaddress nn.nn.nn.nn 255.255.255.0
```

Your changes take effect immediately.

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 Switch from a Rack](#) on page 53

[Replace Power Supplies](#) on page 55

[Replace Fan Modules](#) on page 60

[Replace Expansion Modules](#) on page 61

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

Remove a Switch from a Rack

These procedures assume that you have attached the switch to the rack as described in [Attach the Switch to a Rack or Cabinet](#) on page 42.



Note

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

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.

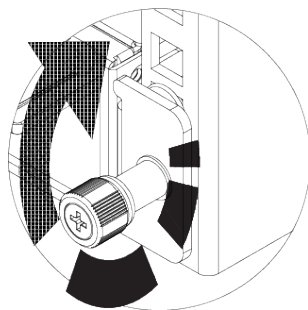


Figure 26: Unscrew Thumb Screws

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

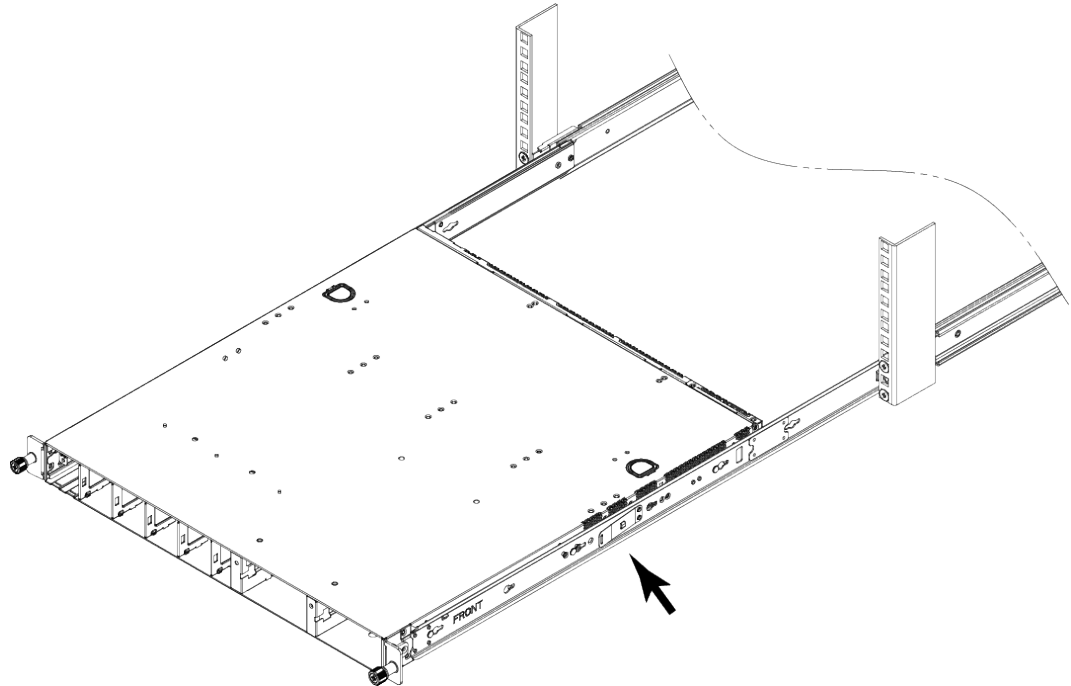


Figure 27: Disconnect latch for removal

- 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.

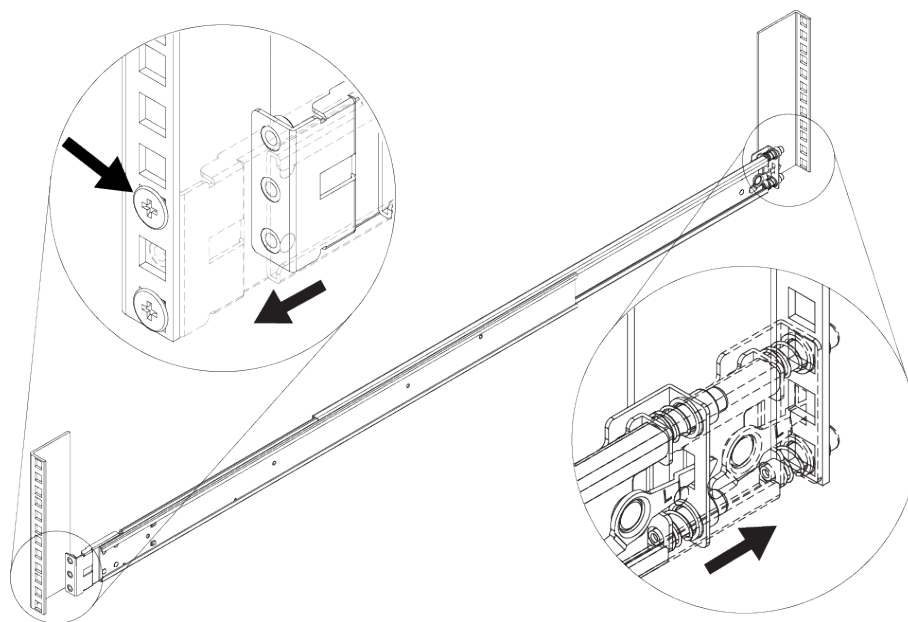


Figure 28: Removing the Outer Rail

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

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

Remove a Switch from a Two-Post Rack

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

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

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

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

Replace Power Supplies

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

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

**Note**

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

Power Supply Airflow Direction Requirements

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

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

Replace a Power Supply

7830 Series switches support the following power supplies:

- Part number XN-ACPWR-2400W-FB provides 2400W AC power with front-to-back airflow for power supply cooling.
- Part number XN-ACPWR-2400W-BF provides 2400W AC power with back-to-front airflow for power supply cooling.
- Part number XN-DCPWR-2400W-FB provides 2400W DC power with front-to-back airflow.
- Part number XN-DCPWR-2400W-BF provides 2400W DC power with back-to-front airflow.

**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.

Remove a Power Supply

**Caution**

Disconnect the AC power cord from the wall outlet and from the power supply before removing an AC power supply. Ensure that the DC circuit is de-energized before removing a DC power supply.

Use the following instructions to remove a power supply.

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

**Caution**

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

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

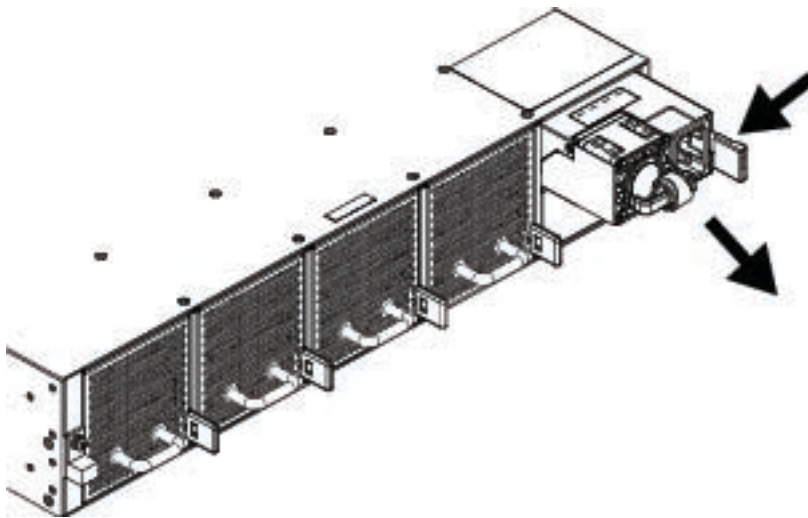


Figure 29: Remove a Power Supply

**Note**

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

Replace or Install a Power Supply

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

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

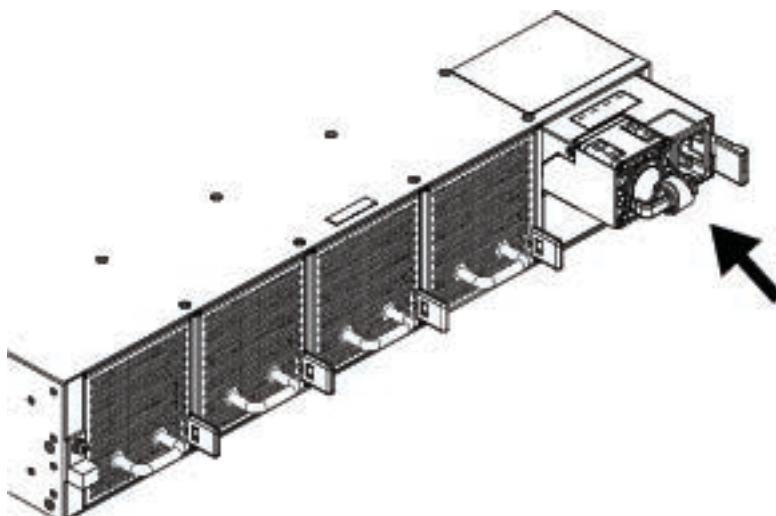


Figure 30: Replace a Power Supply

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

Do not slam the power supply into the switch.



Note

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

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

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



Warning

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

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

- After installing a DC power supply, ground the power supply and connect the power supply to the power source.



Warning

Connect the chassis ground wire before you connect any power cables.

Connect a DC Power Supply to the Source Voltage

To connect a DC power supply to the source voltage, use the following instructions.

Required Tools and Materials for Installing a DC Power Supply

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

- A #6 AWG copper cable for grounding the power supply, a red cable and a black cable. The red and black cables (part numbers 4260-00035 and 4260-00036) are provided with the power supply.
- Connection hardware appropriate to the installation site:
 - Hardware for connecting the power wires to the DC source
 - Hardware for connecting the ground wire to the site grounding point
- Stripping tool
- #1 cross-head (Phillips) screwdriver
- ESD-preventive wrist strap
- Thermal protective gloves (for removal of a warm power supply)

Prepare the Cables for a DC Power Supply

You need three cable wires for each installed DC power supply: a red cable and a black, which are provided, and a grounding wire.


To prepare the cable wires, follow these steps:

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

Connect the Ground Wire to a DC Power Supply

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

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.

Connect the Wires 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.

If the power supply came with power supply cable wires, use 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 49 for more information.

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

Replace Fan Modules

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

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

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

**Note**

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

Fan Airflow Direction Requirements

All installed fan modules must blow air in the same direction and must match the airflow direction of the installed power supplies. Before you begin, have the replacement fan module on hand so that you can complete the replacement promptly. The switch can overheat if left without adequate cooling for an extended time.

- A fan with a **red** tab provides front-to-back airflow for switch cooling.

- A fan with a **blue** tab provides back-to-front airflow for switch cooling.

Replace a Fan Module

7830 Series switches support the following fan modules:

- Part number XN-FAN-007-FB provides front-to-back airflow for switch cooling.
- Part number XN-FAN-007-BF provides back-to-front airflow for switch cooling.

Use the following instructions to remove and replace a fan module in the switch.

Remove a Fan Module

Use the following instructions to remove a fan module.

1. Gently pull the tab on the end of the fan module.

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

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

Install a Fan Module

Use the following instructions to install a fan module.

1. Verify that the airflow direction on the replacement fan module matches that of the installed power supplies and any fan modules.
2. Carefully slide the replacement fan module into the switch.



Note

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

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

Replace Expansion Modules

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



Note

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

Replace Versatile Interface Modules

7830 Series switches support the following versatile interface modules (VIMs):

- 7830-VIM-8DE versatile interface module

**Note**

Not supported in Fabric Engine 9.3.

- 7830-VIM-16CE versatile interface module
- 7830-VIM-24CE versatile interface module

**Note**

Not supported in Fabric Engine 9.3.

- 7830-VIM-24YE versatile interface module

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

- ESD-preventive wrist strap
- Phillips head screwdriver

Remove a VIM module

Use the following instructions to remove a VIM module.

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

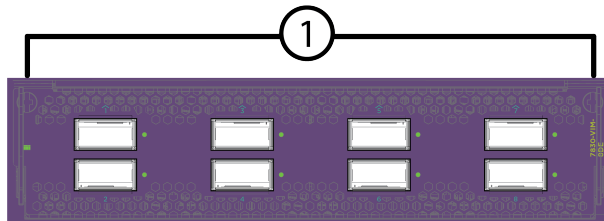


Figure 31: VIM Module Inserted in Slot

1 = VIM module retaining screw locations

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

Replace a VIM module

Use the following instructions to replace a VIM module.

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

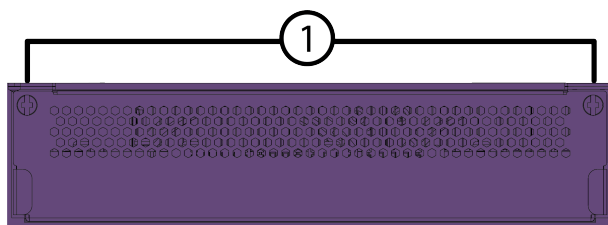


Figure 32: Removing a slot Cover Plate (VIM slot cover shown)

1 = VIM module retaining screw locations

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

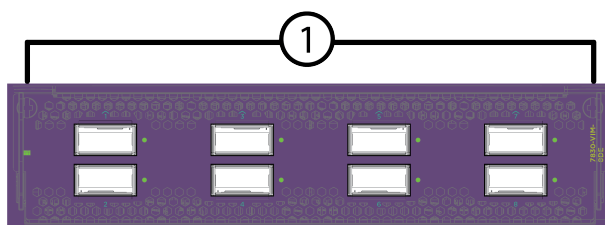


Figure 33: VIM Module Inserted in Slot

1 = VIM module retaining screw locations



Monitor the Switch

- [System Status LEDs](#) on page 64
- [1G/10G SFP+ Management Port LED](#) on page 65
- [100M/1G/10G RJ45 Management Port LEDs](#) on page 66
- [QSFP28 Advanced Services Management Port LED](#) on page 67
- [Port Status LEDs](#) on page 67
- [Power Supply LEDs](#) on page 70
- [Versatile Interface Module Port LEDs](#) on page 72

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 in the middle of the front panel of the switch, as shown in [Figure 34](#).

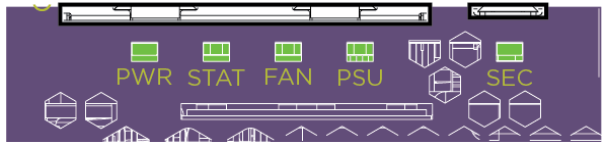


Figure 34: 7830 Series System Status LEDs

[Table 11](#) describes the colors and the states for the LEDs.

Table 11: System Status LEDs

| LED | Color/State | Description |
|--------|----------------------|--|
| Power | Solid green | Valid power. All monitored voltages are nominal. |
| | Off | No power. Some power rails are dropping below specification. |
| System | Off | The unit is not operational. |
| | Solid green | Board is operational. |
| | Blinking amber-green | Attention (No definition). Controlled by SW. |
| | Solid amber | Fault/Initial state. This LED is lit during the reboot. |

Table 11: System Status LEDs (continued)

| LED | Color/State | Description |
|------------|-----------------------------------|--|
| PSU Status | Off | No power. |
| | Solid green | Power on. Main and Standby output enabled with no PSU warning or fault detected. |
| | Blinking green | Standby output enabled with no power supply warning or fault detected. |
| | Solid amber | Fault. Power supply fault |
| | Blinking amber | Power supply warning detected. |
| Fan Status | Off | No power. |
| | Solid green | All fans are operating normally. |
| | Solid amber | Fan failure. |
| Secure | Off | Micro-controller is booting up or fault. Micro-controller is performing initial load (decrypt, validate, load) of its own code, prior to authenticating images. Or the micro-controller is unable to decrypt, validate and load its own image. |
| | 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. |
| | Very 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. |

1G/10G SFP+ Management Port LED

The 1G/10G SFP+ Management Port bi-colored (amber and green) LED is located under the SFP+ management port on the lower left-hand corner of the front panel of the switch, as shown in [Figure 35](#).

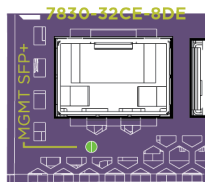


Figure 35: 1G/10G SFP+ Management Port LED

The meaning of the colors and states for the LED are described in [Table 12](#).

Table 12: 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. |

100M/1G/10G RJ45 Management Port LEDs

The 100M/1G/10G RJ45 management port has two LEDs. The green LED indicates a link if it is solid green, and activity on the link if it is blinking green. The second LED is a bi-colored (amber/green) LED that indicates the configured port rate, as defined in [Table 13](#) on page 66.

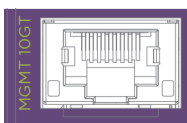


Figure 36: RJ45 Management Port LEDs

Table 13: RJ45 Management Port Rate LED

| State | Definition |
|-------------|------------|
| Off | 100Mbps |
| Solid green | 1Gbps |
| Solid amber | 10Gbps |

QSFP28 Advanced Services Management Port LED

The QSFP28 advanced services management port bi-colored (amber and green) LED is located to the left of the QSFP28 advanced services management port on the upper left-hand corner of the front panel of the switch, as shown in [Figure 37](#).

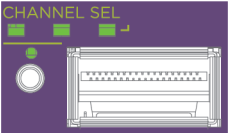


Figure 37: QSFP28 Advanced Services Management Port LED

The meaning of the colors and states for the LED are described in [Table 14](#).

Table 14: QSFP28 Advanced Services Management Port LED

| State | Definition |
|---------------------|---|
| Off | No link. |
| Solid green | The port is linked at 100Gbps. |
| Blinking green | The port has data activity at 100Gbps. |
| Slow blinking green | Local fault. |
| Solid amber | The port is linked at 10/25/40Gbps. |
| Slow blinking amber | Remote fault. |
| Blinking amber | The port has data activity at 10/25/40Gbps. |

Port Status LEDs

The QSFP-DD port status tri-colored (RGB) LEDs are located to the right of each port, as shown in . The LEDs indicate a link to the port, the rate that is configured for the port, and active traffic on the port. The LEDs can also indicate fault conditions.

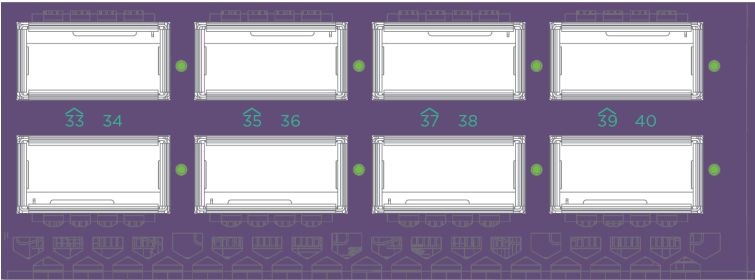


Figure 38: QSFP-DD Port LEDs

The meaning of the colors and states for the QSFP-DD port LEDs are described in [Table 15](#).

Table 15: QSFP-DD Port Status LEDs

| State | Description | Red | Green | Blue | Blink |
|-----------------------|---|-----|-------|------|-------|
| Solid cyan | Link at 400Gbps | 0 | 1 | 1 | 0 |
| Fast blinking cyan | Activity at 400Gbps | 0 | 1 | 1 | 1 |
| Solid magenta | Link at 200Gbps | 1 | 0 | 1 | 0 |
| Fast blinking magenta | Activity at 200Gbps | 1 | 0 | 1 | 1 |
| Solid white | Link at 100Gbps | 1 | 1 | 1 | - |
| Fast blinking white | Activity at 100Gbps | 1 | 1 | 1 | 1 |
| Solid yellow | Link at 50Gbps | 1 | 1 | 0 | 0 |
| Fast blinking yellow | Activity at 50Gbps | 1 | 1 | 0 | 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 |

The QSFP28 port status tri-colored (RGB) LEDs are located below the port for odd numbered ports and above the port for even numbered ports.

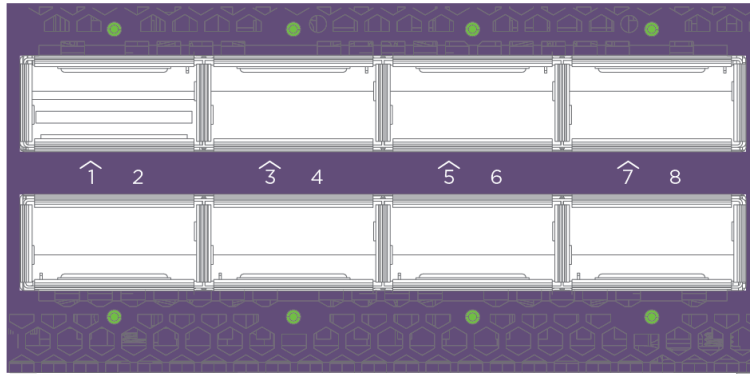


Figure 39: QSFP28 Port LEDs

The meaning of the colors and states for the QSFP28 port LEDs are described in [Table 16](#).

Table 16: QSFP28 Port Status LEDs

| State | Description | Red | Green | Blue | Blink |
|----------------------|------------------------------|-----|-------|------|-------|
| Solid cyan | Link at 400Gbps | 0 | 1 | 1 | 0 |
| Fast blinking cyan | Activity at 400Gbps | 0 | 1 | 1 | 1 |
| Solid white | Link at 100Gbps | 1 | 1 | 1 | - |
| Fast blinking white | Activity at 100Gbps | 1 | 1 | 1 | 1 |
| Solid yellow | Link at 50Gbps | 1 | 1 | 0 | 0 |
| Fast blinking yellow | Activity at 50Gbps | 1 | 1 | 0 | 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 |

Table 16: QSFP28 Port Status LEDs (continued)

| State | Description | Red | Green | Blue | Blink |
|--------------|---|-----|-------|------|-------|
| 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 |

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 . Pushing the sub-channel selector button cycles through sub-channels 1 through 8.

**Figure 40: QSFP-DD Sub-channel Selector Button and LEDs**

The meaning of the colors and states for the LED are described in [Table 17](#).

Table 17: 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 |

Power Supply LEDs

The power supplies have a bi-color (green/amber) LED to indicate power supply status. The following tables describe the LED state and description:

Table 18: 2400 W AC Power Supply LEDs

| LED | Description |
|--|--|
| Off | No AC power to all power supplies |
| Solid green | 12V1 output ON and OK |
| Blinking green (1Hz) | AC present / Only +12Vsb on (PS off) or PSU in Smart standby mode |
| Solid amber | AC cord unplugged or AC power lost; with a second power supply in parallel still with AC input power |
| Blinking amber (1Hz) | Power supply warning events where the power supply continues to operate; high temp, high power, high current |
| Solid amber | Power supply critical event causing a shunt down OTP, OCP, UVP. OVP |
| Blinking green (2Hz) | Power supply firmware updating |
| Blinking green (0.33Hz) (1s Off 2s Green) | Cold redundancy mode |

Table 19: 2400 W DC Power Supply LEDs

| LED | Description |
|--|--|
| Off | No DC power to all power supplies |
| Solid green | 12V1 output ON and OK |
| Blinking green (1Hz) | DC present / Only +12Vsb on (PS off) or PSU in Smart standby mode |
| Solid amber | DC cord unplugged or DC power lost; with a second power supply in parallel still with DC input power |
| Blinking amber (1Hz) | Power supply warning events where the power supply continues to operate; high temp, high power, high current |
| Solid amber | Power supply critical event causing a shunt down OTP, OCP, UVP. OVP |
| Blinking green (2Hz) | Power supply firmware updating |
| Blinking green (0.33Hz) (1s Off 2s Green) | Cold redundancy mode |

Versatile Interface Module Port LEDs

The versatile interface module (VIM) has a bi-color (green/amber) LED that indicates VIM port status. The LED is located on the front panel of the VIM. The meaning of the color and states for the VIM LED is described in [Table 20](#).

Table 20: VIM Port Status LED

| State | Definition |
|----------------|--|
| Off | VIM is powered off. |
| Solid green | All power rails are OK and the VIM is working. |
| Blinking amber | A power rail has failed. |



Technical Specifications

[7830 Series Technical Specifications](#) on page 73
[Acoustic Noise and Fan Speed](#) on page 76
[CPU/Memory](#) on page 76
[Mean Time Between Failures](#) on page 77
[Power Specifications](#) on page 77
[Environmental](#) on page 78
[Standards](#) on page 79
[EMI/EMC Standards](#) on page 79
[Power Cord Requirements for AC-Powered Switches and AC Power Supplies](#) on page 80
[Console Connector Pinouts](#) on page 81

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

7830 Series Technical Specifications

The following table contains external interfaces and weights and dimensions information for 7830 Series switches.

External Interfaces

| Interfaces | Description |
|----------------|--|
| Ports | <ul style="list-style-type: none"> • 32 x 10/25/40/50/100/Gbps QSFP28 ports (backwards compatible to QSFP-28) • 8 x 10/25/50/100/200/400Gbps QSFP-DD ports • 1 x 1/10Gbps SFP+ out-of-band management port • 1 x 100Mbps/1Gbps/10Gbps RJ45 out-of-band management port • 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 2400W AC power supply (up to 2 PSUs) Modular 2400W DC power supply (up to 2 PSUs) Front-to back and back-to-front airflow options |
| Fan Tray | 4 fan modules, support one fan redundancy Front-to back and back-to-front airflow options |
| Dimensions | 17.32in W/25.02in D/3.46in H (439.6mm W/635mm D/87.8mm H) |
| Weight | 37.92 lb (17.2 kg) |

Weights and Dimensions of Versatile Interface Modules (VIMs)

| Model | Weight | Dimensions |
|---------------|-----------------|---|
| 7830-VIM-8DE | 1.65Kg (3.64lb) | 190.25mm W x 41.4mm H x 279.91mm D (7.49in W x 1.63in H x 11.02in D) |
| 7830-VIM-16CE | 1.43kg (3.15lb) | 190.25mm W x 41.4mm H x 279.91mm D (7.49in W x 1.63in H x 11.02in D) |

| Model | Weight | Dimensions |
|---------------|-----------------|---|
| 7830-VIM-24CE | 1.44kg (3.17lb) | 190.25mm W x 41.4mm H x 279.91mm D (7.49in W x 1.63in H x 11.02in D) |
| 7830-VIM-24YE | 1.36kg (2.99lb) | 190.25mm W x 41.4mm H x 279.91mm D (7.49in W x 1.63in H x 11.02in D) |

Weights and Dimensions of Accessories

| Model | Weight | Dimensions |
|---|-----------------|---|
| XN-FAN-007-FB: Fan unit, front-to-back or XN-FAN-007-BF: Fan Unit back-to-front | 0.55kg (1.21lb) | 80mm W x 83.1mm H x 100.58mm D (3.15in W x 3.27in H x 3.96in D) |
| XN-ACPWR-2400W-FB: PSU, front-to-back XN-ACPWR-2400W-BF: PSU, back-to-front | 0.95kg (2.09lb) | 73.66mm W x 40.13mm H x 185.17mm D (2.9in W x 1.58in H x 7.29in D) |
| XN-DCPWR-2400W-FB: PSU, front-to-back XN-DCPWR-2400W-BF: PSU, front-to-back | 0.93kg (2.06lb) | 73.66mm W x 40.13mm H x 185.17mm D (2.9in W x 1.58in H x 7.29in D) |
| XN-4P-RKMT301 - Four-post rack mount kit (included with switch) | 2.96kg (6.53lb) | 70.1mm W x 50.04mm H x 720.6mm D (2.76in W x 1.97in H x 28.37in D) |

Console Cables

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

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

Acoustic Noise and Fan Speed

Table 21 contains acoustic noise information for the switch.

Table 21: Acoustic Noise

| Switch Model | Bystander Sound Pressure (dB(A)) | Declared Sound Power (Bels) |
|-------------------------------|----------------------------------|-----------------------------|
| 7830-32CE-8DE AC PSUs, F-B | 75.9dB, 25°C | 9.3B, 25°C |
| | 86.4dB, 40°C | 10.3B, 40°C |
| 7830-32CE-8DE AC PSUs, B-F | 83.9dB, 25°C | 9.9B, 25°C |
| | 87.9dB, 40°C | 10.3B, 40°C |
| 7830-32CE-8DE DC PSUs, F-B | 75.7dB, 25°C | 9.3B, 25°C |
| | 86.1dB, 40°C | 10.3B, 40°C |
| 7830-32CE-8DE DC PSUs, B-F | 83.6dB, 25°C | 9.9B, 25°C |
| | 88.0dB, 40°C | 10.3B, 40°C |

Table 22 contains fan speed information for the switch.

Table 22: Fan Speed

| Model | Fan Speed | Fan RPM (typical) |
|---------------------------|----------------|-------------------|
| 7830-32CE-8DE F-B, B-F | Maximum (100%) | 17,000 |
| | Medium (80%) | 9,300 |
| | Low (50%) | 8,500 |

CPU/Memory

The following table includes CPU and memory specifications for the 7830 Series switches.

| Specifications |
|--|
| Intel Snow Ridge SOC Processor supporting (8 cores) |
| 2 x DDR4 SO-DIMM slots, each with 8GB with ECC, expandable to 32GB |
| 2 x 16MB SPI flash |
| 2 x 128G SATA SSD (internal) |

Mean Time Between Failures

The following table contains mean time between failures information for the 7830 Series switches.

| Model | PSU Details | Fan Details | MTBF at 25°C | MTBF at 50°C |
|---------------|------------------|-----------------------|--------------|--------------|
| 7830-32CE-8DE | F-B, 1x AC 2400W | F-B, 4x internal fans | 129,044 | 70,974 |
| | F-B, 2x AC 2400W | F-B, 4x internal fans | 136,856 | 75,414 |
| | B-F, 1x AC 2400W | B-F, 4x internal fans | 126,859 | 71,010 |
| | B-F, 2x AC 2400W | B-F, 4x internal fans | 135,209 | 75,455 |
| | F-B, 1x DC 2400W | F-B, 4x internal fans | 120,186 | 66,586 |
| | F-B, 2x DC 2400W | F-B, 4x internal fans | 130,077 | 72,051 |
| | B-F, 1x DC 2400W | B-F, 4x internal fans | 118,476 | 66,618 |
| | B-F, 2x DC 2400W | B-F, 4x internal fans | 128,737 | 72,088 |

Power Specifications

The following topic contains power specification information for 7830 Series switches. Refer to the *Extreme 7830 Series Data Sheet* for up-to-date information.

Power Supply Specifications

The following table includes power supply specifications for the switch.

| | 2400W AC PSU XN-ACPWR-2400W-FB XN-ACPWR-2400W-BF | 2400WDC PSU XN-DCPWR-2400W-FB XN-DCPWR-2400W-BF |
|----------------------|--|---|
| Voltage Input Range | 100-120/200-240VAC | -48 to -60VDC |
| Line Frequency Range | 50Hz– 60Hz | N/A |
| Input Rating | 13.8/10A Max. for each PSU | 45A Max. for each PSU |
| PSU Input Socket | IEC320 C20 | Tyco 2204535-3 |
| PSU Output Cord | IEC320 C19 | N/A |
| Operating Conditions | 0°C–45°C operation | 0°C–45°C operation |

Power and Heat Dissipation

The following tables include power consumption and power and heat dissipation for the switch.

| 7830-32 CE-8DE | VIN(Vrms) | Minimum Power Consumption (Watts) (Idle, no ports linked) | Minimum Heat Dissipation (BTU/hr) | Maximum Power Consumption (Watts) (All ports 100% traffic) | Maximum Heat Dissipation (BTU/hr) | Max AC PSU Power Output Per AC PSU (Watts) | Minimum Number of AC PSUs Required | N+1 Redundancy |
|-------------------|--------------|---|---|---|---|--|--|-------------------|
| AC PSU | 90-132V | 1225.2 | 4181.5 | 2016 | 6878.8 | 1200W | 2 | No |
| | 180-264 V | 1180.5 | 4028 | 1952 | 6660.5 | 2400W | 1 | Yes |

| 7830-32 CE-8DE | VIN(Vrms) | Minimum Power Consumption (Watts) (Idle, no ports linked) | Minimum Heat Dissipation (BTU/hr) | Maximum Power Consumption (Watts) (All ports 100% traffic) | Maximum Heat Dissipation (BTU/hr) | Max AC PSU Power Output Per AC PSU (Watts) | Minimum Number of AC PSUs Required | N+1 Redundancy |
|-------------------|-----------|---|---|---|---|--|--|-------------------|
| DC PSU | 40-72V | 1197 | 4084.3 | 2015.5 | 6877.2 | 2400W | 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

EN 61000-6-2 (Ind. Immunity), EN 61000-6-4 (Ind. Emissions)

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

Table 23: 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 41 shows the pinouts for a 9-pin to 25-pin (RS-232) null-modem cable.

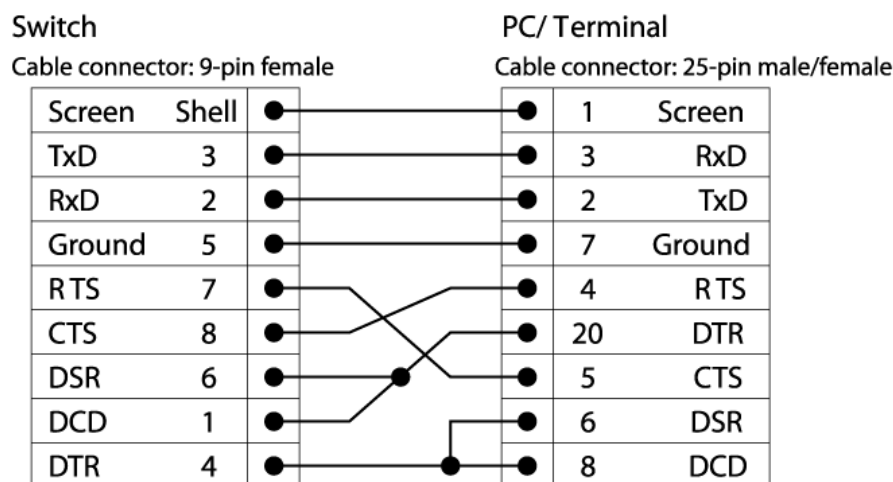


Figure 41: Null-Modem Cable Pinouts

Figure 42 shows the pinouts for a 9-pin to 9-pin (PC-AT) null-modem serial cable.

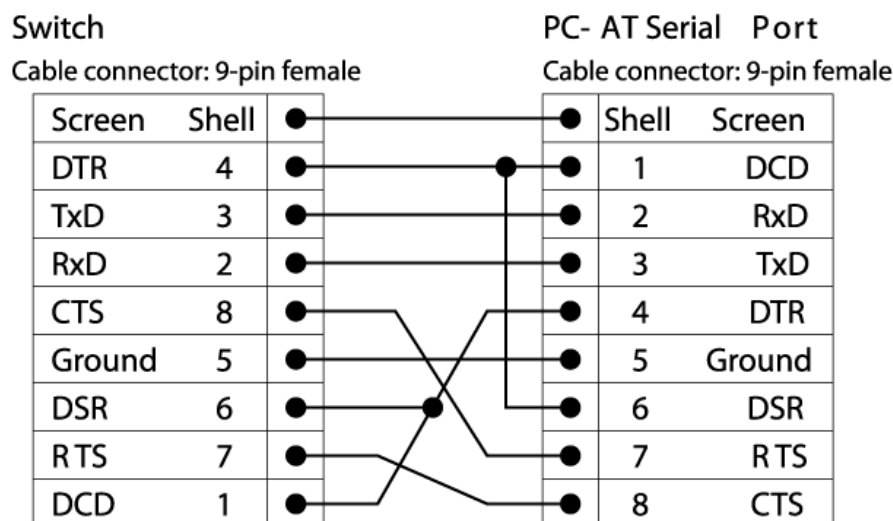


Figure 42: PC-AT Serial Null-modem Cable Pinouts

Table 24 shows the pinouts for the RJ45 console port on the ExtremeSwitching switches.

Table 24: 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 |
| DSR (data set ready) | 7 | In |
| CTS (clear to send) | 8 | In |

Table 25 shows the pinouts for an RJ45-to-DB-9 adapter.

Table 25: 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 |

Table 25: Pinouts for an RJ45 to DB-9 Adapter (continued)

| Signal | RJ45 Pin | DB-9 Pin |
|-----------------------|----------|----------|
| DSR (data set ready) | 7 | 4 |
| RTS (request to send) | 8 | 7 |



Safety and Regulatory Information

[Considerations Before Installing](#) on page 85
[General Safety Precautions](#) on page 85
[Maintenance Safety](#) on page 86
[Fiber Optic Ports and Optical Safety](#) on page 86
[Cable Routing for LAN Systems](#) on page 87
[Install Power Supply Units and Connect Power](#) on page 88
[Select Power Supply Cords](#) on page 89
[Battery Notice](#) on page 89
[Battery Warning - Taiwan](#) on page 90
[EMC Warnings](#) on page 90
[Japan \(VCCI Class A\)](#) on page 90
[Korea EMC Statement](#) on page 91



Note

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

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

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

Considerations Before Installing

Consider the following items before you install equipment.

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

General Safety Precautions

Follow these guidelines:

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

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

Maintenance Safety

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

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

Fiber Optic Ports and Optical Safety

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

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

**Warning**

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

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

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

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

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

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

Cable Routing for LAN Systems

Extreme Networks equipment meets the requirements for LAN system equipment.

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

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

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

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

**Caution**

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

**Warning**

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

Install Power Supply Units and Connect Power

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

**Warning**

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

When you install any power supply:

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

When you install DC power supplies or connect DC power:

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

**Note**

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

**Warning**

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

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

Select Power Supply Cords

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

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

**Note**

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

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

Battery Notice



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

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



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

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

Battery Warning - Taiwan

警告

如果更換不正確之電池型式會有爆炸的風險，
請依製造商說明書處理用過之電池。

EMC Warnings

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

Korea EMC Statement

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