Extreme
Connect Beyond the Network

ExtremeSwitching SLX 9140
Hardware Installation Guide

Copyright Statement

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Preface

Document conventions

The document conventions describe text formatting conventions, command syntax conventions, and important notice formats used in Extreme technical documentation.

Notes, cautions, and warnings

Notes, cautions, and warning statements may be used in this document. They are listed in the order of increasing severity of potential hazards.

NOTE
A Note provides a tip, guidance, or advice, emphasizes important information, or provides a reference to related information.

ATTENTION
An Attention statement indicates a stronger note, for example, to alert you when traffic might be interrupted or the device might reboot.

CAUTION
A Caution statement alerts you to situations that can be potentially hazardous to you or cause damage to hardware, firmware, software, or data.

DANGER
A Danger statement indicates conditions or situations that can be potentially lethal or extremely hazardous to you. Safety labels are also attached directly to products to warn of these conditions or situations.

Text formatting conventions

Text formatting conventions such as boldface, italic, or Courier font may be used to highlight specific words or phrases.

Format	Description
bold text	Identifies command names
	Identifies keywords and operands
	Identifies the names of GUI elements
	Identifies text to enter at the GUI
italic text	Identifies emphasis
	Identifies variables

	Identifies document titles
`Courier font`	Identifies CLI output
	Identifies command syntax examples

Command syntax conventions

Bold and italic text identify command syntax components. Delimiters and operators define groupings of parameters and their logical relationships.

Convention	Description
bold text	Identifies command names, keywords, and command options.
italic text	Identifies a variable.
[ ]	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, for example, passwords, are enclosed in angle brackets.
...	Repeat the previous element, for example, *member* [*member*...].
\	Indicates a "soft" line break in command examples. If a backslash separates two lines of a command input, enter the entire command at the prompt without the backslash.

Extreme resources

Visit the Extreme website to locate related documentation for your product and additional Extreme resources.

White papers, data sheets, and the most recent versions of Extreme software and hardware manuals are available at www.extremenetworks.com. Product documentation for all supported releases is available to registered users at www.extremenetworks.com/support/documentation.

Document feedback

Quality is our first concern at Extreme and we have made every effort to ensure the accuracy and completeness of this document. However, if you find an error or an omission, or you think that a topic needs further development, we want to hear from you.

You can provide feedback in two ways:

- Use our short online feedback form at http://www.extremenetworks.com/documentation-feedback-pdf/
- Email us at internalinfodev@extremenetworks.com

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

Contacting Extreme Technical Support

As an Extreme customer, you can contact Extreme Technical Support using one of the following methods: 24x7 online or by telephone. OEM customers should contact their OEM/solution provider.

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

- GTAC (Global Technical Assistance Center) for immediate support
  - Phone: 1-800-998-2408 (toll-free in U.S. and Canada) or +1 408-579-2826. For the support phone number in your country, visit: www.extremenetworks.com/support/contact.
  - Email: support@extremenetworks.com. To expedite your message, enter the product name or model number in the subject line.
- GTAC Knowledge – Get on-demand and tested resolutions from the GTAC Knowledgebase, or create a help case if you need more guidance.
  - The Hub – A forum for Extreme customers to connect with one another, get questions answered, share ideas and feedback, and get problems solved. This community is monitored by Extreme Networks employees, but is not intended to replace specific guidance from GTAC.
  - Support Portal – Manage cases, downloads, service contracts, product licensing, and training and certifications.

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

- Your Extreme Networks service contract number and/or serial numbers for all involved Extreme Networks products
- A description of the failure
- A description of any action(s) 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

Contacting Extreme Technical Support

About This Document

Supported hardware and software

The following tables list the power supplies, fan assemblies, and rack mount kits supported on the ExtremeSwitching SLX 9140 switch.

TABLE 1   Power supplies

Part number	Description	Introduced (OS)	Currently supported (OS)
XBR-ACPWR-650-F	650W AC power supply with nonport-side exhaust airflow	SLX-OS 17s.1.00	Yes
XBR-ACPWR-650-R	650W AC power supply with nonport-side intake airflow	SLX-OS 17s.1.00	Yes
XBR-DCPWR-650-F	650W DC power supply with nonport-side exhaust airflow	SLX-OS 17s.1.00	Yes
XBR-DCPWR-650-R	650W DC power supply with nonport-side intake airflow	SLX-OS 17s.1.00	Yes

TABLE 2   Fan assemblies

Part number	Description	Introduced (OS)	Currently supported (OS)
XBR-3250CFM-FAN-F	Fan with nonport-side exhaust airflow	SLX-OS 17s.1.00	Yes
XBR-3250CFM-FAN-R	Fan with nonport-side intake airflow	SLX-OS 17s.1.00	Yes

TABLE 3   Rack mount kits

Part number	Description
XBR-R000294	Universal two-post mid-mount or flush-mount rack kit
XBR-R000296	Universal four-post fixed rack mount kit
XBR-R000297	Four-post fixed rack mount kit

NOTE
The XBR-R000294 and XBR-R000296 rack-mount kits can also be used with the SLX 9140, however the switch is shipped with the XBR-R000297 kit.

Device Overview

Hardware features

The ExtremeSwitching SLX 9140 switch offers 100-Gbps, 40-Gbps, 25-Gbps, 10-Gbps, and 1-Gbps line rates, low latency switching, and up to 1.8 Tbps throughput for campus LAN and classic Ethernet data center environments.

The SLX 9140 switch features:

- Comprehensive support for a range of 1-, 10-, 25-, 40-, and 100-GbE optics

- Auto-detection of media speed supported on all SFP28 and QSFP28 ports

- SFP28 ports supporting 25-GbE, 10-GbE, and 1-GbE transceivers

- QSFP28 ports supporting 100-GbE and 40-GbE transceivers, including support for 2x50* GbE, 4x25 GbE, and 4x10 GbE breakout transceivers

- The QSFP28 ports can be configured in 4x25 GbE breakout mode, for a total of 72x25 GbE ports

- Multi-speed configuration support for some qualified passive cables

- Dual redundant, hot-swappable power supplies available with intake or exhaust airflow (650 W AC or 650 W DC)

- Five (4+1) redundant, hot-swappable fan assemblies available with intake or exhaust airflow. A sixth fan assembly can be installed for extended temperature range performance.

- One 10/100/1000Base-T port (RJ-45) for out-of-band management

- One serial management port (mini-USB) to configure and manage the switch through the CLI

- One USB port for the transfer of software and configuration files from an external disk drive

* Not currently supported by software.

Port-side view of the SLX 9140 switch

Figure 1 shows the front view of the SLX 9140 switch.

FIGURE 1   Front view of the SLX 9140 switch
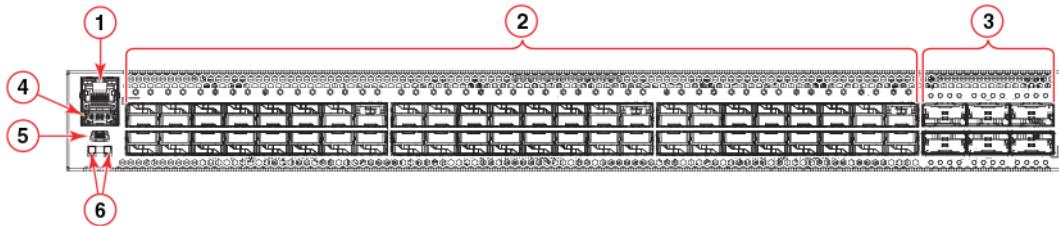
1	10/100/1000Base-T RJ-45 management port	4	USB port (for flash drive)
2	SFP28 ports 1- 48	5	Mini-USB console port
3	QSFP28 ports 49- 54	6	System LEDs

Nonport-side view of the SLX 9140 switch

Figure 2 shows the rear view of the SLX 9140 switch.

FIGURE 2   Rear view of the SLX 9140
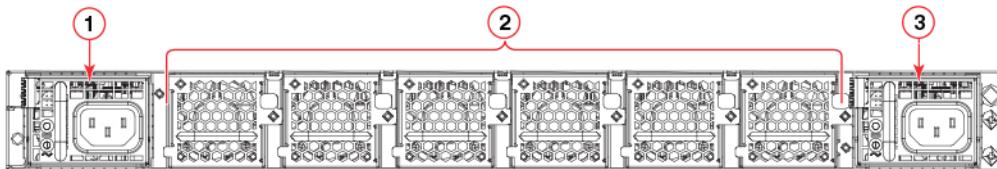
| 1 | Power supply unit 1 | 3 | Power supply unit 2 |
| 2 | Fans 1-6 | | |

Device management options

You can use the management functions built into the switch to monitor the port status, physical status, and other information to help you analyze device performance and system debugging. The switch automatically performs power–on self-test (POST) each time it is turned on.

You can manage the switch using any of the management options listed in the following table.

TABLE 1   Management options for the switch

Management tool	Out-of-band support	In-band support	Reference documents
Command line interface (CLI)	Ethernet or serial connection	N/A	*Extreme SLX-OS Command Reference* for the SLX 9140 and 9240 switches
REST or NETCONF/YANG APIs.	Ethernet connection	Yes	*Extreme SLX-OS Management Configuration Guide* for the SLX 9140 and 9240 switches
Standard SNMP applications	Ethernet or serial connection	N/A	*Extreme SLX-OS Management Configuration Guide* for the SLX 9140 and 9240 switches

Preparing for Installation

Safety precautions

When using this product, observe all danger, caution, and attention notices in this manual. The safety notices are accompanied by symbols that represent the severity of the safety condition.

Refer to "Cautions and Danger Notices" on page 71 for translations of safety notices for this product.

General precautions

DANGER
The procedures in this manual are for qualified service personnel.

DANGER
Before beginning the installation, see the precautions in "Power precautions."

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

CAUTION
Changes or modifications made to this device that are not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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

CAUTION
Make sure the airflow around the front, sides, and back of the device is not restricted.

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

CAUTION
To protect the serial port from damage, keep the cover on the port when not in use.

CAUTION
Never leave tools inside the chassis.

CAUTION
If you do not install a 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.

CAUTION
Use the screws specified in the procedure. Using longer screws can damage the device.

CAUTION
Do not install the device in an environment where the operating ambient temperature might exceed 50°C (122°F).

CAUTION
Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the manufacturer's instructions.

ESD precautions

DANGER
For safety reasons, the ESD wrist strap should contain a series 1 megohm resistor.

CAUTION
Static electricity can damage the chassis and other electronic devices. To avoid damage, keep static-sensitive devices in their static-protective packages until you are ready to install them.

CAUTION
Before plugging a cable to any port, be sure to discharge any static charge stored on the cable by touching the electrical contacts to ground surface.

Power precautions

DANGER
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.

DANGER
Disconnect the power cord from all power sources to completely remove power from the device.

DANGER
This device might have more than one power cord. To reduce the risk of electric shock, disconnect all power cords before servicing.

CAUTION
To avoid high voltage shock, do not open the device while the power is on.

CAUTION
Use a separate branch circuit for each power cord, which provides redundancy in case one of the circuits fails.

CAUTION
Ensure that the device does not overload the power circuits, wiring, and over-current protection. To determine the possibility of overloading the supply circuits, add the ampere (amp) ratings of all devices installed on the same circuit as the device. Compare this total with the rating limit for the circuit. The maximum ampere ratings are usually printed on the devices near the input power connectors.

Lifting precautions

DANGER
Use safe lifting practices when moving the product.

DANGER
Mount the devices you install in a rack as low as possible. Place the heaviest device at the bottom and progressively place lighter devices above.

CAUTION
Make sure the rack housing the device is adequately secured to prevent it from becoming unstable or falling over.

CAUTION
To prevent damage to the chassis and components, never attempt to lift the chassis using the fan or power supply handles. These handles were not designed to support the weight of the chassis.

Laser precautions

DANGER
All fiber-optic interfaces use Class 1 lasers.

⚠ **DANGER**
Laser radiation. Do not view directly with optical instruments. Class 1M laser products.

⚠ **DANGER**
Use only optical transceivers that are qualified by Extreme Networks, Inc. and comply with the FDA Class 1 radiation performance requirements defined in 21 CFR Subchapter I, and with IEC 825 and EN60825. Optical products that do not comply with these standards might emit light that is hazardous to the eyes.

Facility requirements

To install and operate the device successfully, ensure compliance with the following facility requirements.

Electrical considerations

For successful installation and operation of the device, ensure that the following electrical requirements are met:

- The primary outlet is correctly wired, protected by a circuit breaker, and grounded in accordance with local electrical codes.
- The supply circuit, line fusing, and wire size are adequate, as specified by the electrical rating on the device nameplate.
- The power supply standards are met.

Environmental considerations

For successful installation and operation of the device, ensure that the following environmental requirements are met:

- Because the SLX 9140 switch can be ordered with fans that move air either front to back or back to front, be sure to orient your switch with the airflow pattern of any other devices in the rack. All equipment in the rack should force air in the same direction to avoid intake of exhaust air.
- Some combinations of intake and exhaust airflows may not be compatible with your environment. Consult your fan assembly and power supply module FRU kits to determine the correct configuration.
- The ambient air temperature does not exceed 50°C (122°F) while the switch is operating with front-to-back airflow, or 45°C (113°F) while the switch is operating with back-to-front airflow.

Location considerations

Before installing the device, plan its location and orientation relative to other devices and equipment. Devices can be mounted in a standard 19-inch equipment rack.

The site should meet the following requirements:

- Maintain the operating environment as specified in "Environmental considerations" on page 8.
- Allow a minimum of 3 in. of space between the front and the back of the device and walls or other obstructions for proper airflow.
- Allow at least 3 in. of space at the front and back of the device for the twisted-pair, fiber-optic, and power cabling.
- Allow access space for installing, cabling, and maintaining the devices.
- Ensure the status LEDs are clearly visible.
- Allow for twisted-pair cables to be routed away from power lines, fluorescent lighting fixtures, and other sources of electrical interference, such as radios and transmitters.

- Allow for the unit to be connected to a separate grounded power outlet that provides 100 to 240 VAC, 50 to 60 Hz, is within 2 m (6.6 ft) of each device, and is powered from an independent circuit breaker. As with any equipment, a filter or surge suppressor is recommended.

Rack considerations

For successful installation and operation of the device in a rack, ensure the following rack requirements are met:

- The rack must be a standard EIA rack.
- The equipment in the rack is grounded through a reliable branch circuit connection and maintains ground at all times. Do not rely on a secondary connection to a branch circuit, such as a power strip.
- Airflow and temperature requirements are met on an continual basis, particularly if the device is installed in a closed or multirack assembly.
- The additional weight of the device does not exceed the rack's weight limits or unbalance the rack in any way.
- The rack is secured to ensure stability in case of unexpected movement, such as an earthquake.

Recommendations for cable management

Cables can be organized and managed in a variety of ways; for example, use cable channels on the sides of the rack or patch panels to reduce the potential for tangling the cables. The following list provides some recommendations for cable management:

> **CAUTION**
> Before plugging a cable to any port, be sure to discharge any static charge stored on the cable by touching the electrical contacts to ground surface.

> **NOTE**
> You should not use tie wraps with fiber-optic cables because they are easily overtightened and can damage the optical fibers. Velcro-like wraps are recommended.

- Plan for the rack space required for cable management before installing the device.
- Leave at least 1 m (3.28 ft) of slack for each port cable. This provides room to remove and replace the device, allows for inadvertent movement of the rack, and helps prevent the cables from being bent to less than the minimum bend radius.
- For easier maintenance, label the cables and record the devices to which they are connected.
- Keep LEDs visible by routing port cables and other cables away from the LEDs.

Quick installation checklist

Follow the steps listed in Table 2 to install your device. Details for each of these steps are provided on the pages indicated.

TABLE 2   Installation tasks

Task number	Task	Where to find more information
1	Ensure that the physical environment that will host the device has the proper cabling and ventilation.	"Facility requirements" on page 8
2	If customizing an SLX 9140 switch baseline chassis: 1 Install at least one power supply unit. 2 Install at least five fans.	"Inserting a new AC power supply" on page 52 "Inserting a new DC power supply" on page 53 "Inserting a new fan assembly" on page 59

TABLE 2 Installation tasks (Continued)

Task number	Task	Where to find more information
2	Mount the device on a desktop or in a rack.	"Installing the device in a rack" on page 12 "Four-post rack mount installation (XBR-R000297)" on page 12 "Installing the Universal Two-Post Rack Kit (XBR-R000294)" on page 16 "Installing the Universal Four-Post Rack Kit (XBR-R000296)" on page 25
3	Plug the device into a nearby power source that adheres to the regulatory requirements outlined in this manual.	"Providing power to the device" on page 37
4	Attach a terminal or PC to the device. This will enable you to configure the device through the command line interface (CLI).	"Establishing a first-time serial connection" on page 37
5	Assign a password for additional access security. No default password is assigned to the CLI.	*Extreme SLX-OS Command Reference* for the SLX 9140 and 9240 switches
6	Before attaching equipment to the device, you must configure an interface IP address to the subnet on which the device will be located. Initial IP address configuration is performed using the CLI with a direct serial connection.	*Extreme SLX-OS Command Reference* for the SLX 9140 and 9240 switches
7	Connect network equipment to the system.	"Connecting network devices" on page 42
8	Test IP connectivity to other devices by pinging them and tracing routes.	*Extreme SLX-OS Command Reference* for the SLX 9140 and 9240 switches
9	Continue configuring the device using the CLI.	*Extreme SLX-OS Command Reference* for the SLX 9140 and 9240 switches
10	Secure access to the device.	*Extreme SLX-OS Management Configuration Guide* for the SLX 9140 and 9240 switches

Mounting the Device

Mounting options

You can mount the SLX 9140 switch in the following ways:

- In a four-post EIA rack using the flush-mount rack kit (XBR-R000297) included with the switch. The rack kit can be used to install devices in EIA racks that are between 46 cm and 79 cm (18 to 31 in.) deep.

- In a two-post Telco rack using the Universal Two-Post Rack Kit (XBR-R000294). The two-post rack kit supports various mounting positions.

- In a four-post EIA rack using the Universal Four-Post Rack Kit (XBR-R000296). The rack kit can be used to install devices in EIA racks that are between L-13.7 to 81.28 cm deep (L-5.0 to 32.0 in.), where L is the chassis depth.

Precautions specific to mounting

DANGER
Use safe lifting practices when moving the product.

CAUTION
Make sure the rack housing the device is adequately secured to prevent it from becoming unstable or falling over.

CAUTION
Make sure the airflow around the front, sides, and back of the device is not restricted.

CAUTION
Never leave tools inside the device.

CAUTION
Use the screws specified in the procedure. Using longer screws can damage the device.

> ⚠️ **CAUTION**
> Do not install the device in an environment where the operating ambient temperature might exceed 50°C (122°F).

Installing the device in a rack

> ⚠️ **CAUTION**
> Make sure the rack housing the device is adequately secured to prevent it from becoming unstable or falling over.

> **NOTE**
> You need a #2 Phillips screwdriver for installation.

Before mounting the device in a rack, pay particular attention to the following factors:

- Temperature: Because the temperature within a rack assembly may be higher than the ambient room temperature, check that the rack-environment temperature is within the specified operating temperature range. (Refer to "Facility requirements" on page 8.)
- Mechanical loading: Do not place any equipment on top of a rack-mounted unit.
- Circuit overloading: Be sure that the supply circuit to the rack assembly is not overloaded.
- Grounding: Rack-mounted equipment should be properly grounded. Particular attention should be given to supply connections other than direct connections to the mains electricity supply.

To mount the product into a four-post rack using the included rack-mount kit (XBR-R000297), refer to "Four-post rack mount installation (XBR-R000297)" on page 12 for the installation procedure.

To mount the product into a two-post rack, you can order the two-post rack kit with the part number XBR-R000294. For the procedure to install this kit, refer to "Installing the Universal Two-Post Rack Kit (XBR-R000294)" on page 16.

To mount the product into a four-post rack, you can also order the four-post rack kit with the part number XBR-R000296. For the procedure to install this kit, refer to "Installing the Universal Four-Post Rack Kit (XBR-R000296)" on page 25.

Four-post rack mount installation (XBR-R000297)

Use the following instructions to install the SLX 9140 switch in EIA racks that are between 46 cm and 79 cm (18 to 31 in.) using the four-post flush-mount rack kit included with the switch.

Time and items required

Allow 15 to 30 minutes to complete the installation.

The following items are required to install the device using the four-post flush-mount rack kit:

- #2 Phillips torque screwdriver
- 1/4-inch slotted-blade screwdriver

Parts list

The following parts are provided with the four-post flush-mount rack kit (XBR-R000297).

FIGURE 3 Items in the four-post flush-mount rack kit
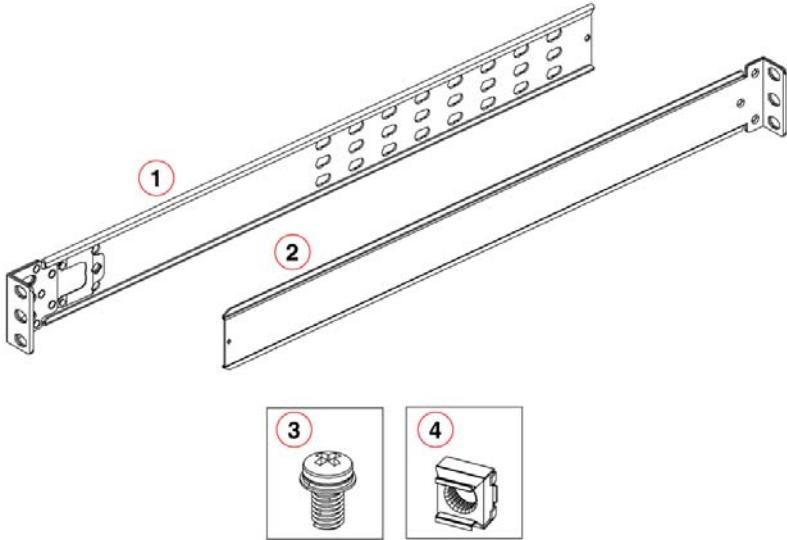
| 1 | Front brackets (2) | 3 | Screw, 10-32 x 5/8-in., panhead Phillips (8) |
| 2 | Rear brackets (2) | 4 | Retainer nut, 10-32 (8) |

Ensure that the items listed and illustrated in Figure 3 are included in the kit.

> ⚠️ **CAUTION**
> Use the screws specified in the procedure. Using longer screws can damage the device.

Flush-front mounting

> ⚡ **CAUTION**
> The device must be turned off and disconnected from the fabric during this procedure.

Complete the following tasks to install the device in a four-post rack.

1. "Attaching the front brackets" on page 14
2. "Installing the device in the rack" on page 14
3. "Attaching the rear brackets to the rack posts" on page 15

Attaching the front brackets

Complete the following steps to attach the front brackets to the device.

1. Position the right front bracket with the flat side against the right side of the device over the six pre-installed keyhole fasteners, as shown in Figure 4.

2. Slide the bracket toward the front of the device until the bracket latch clicks into its secure position.

3. Repeat step 1 and step 2 to attach the left front bracket to the left side of the device.

FIGURE 4   Attaching the front brackets
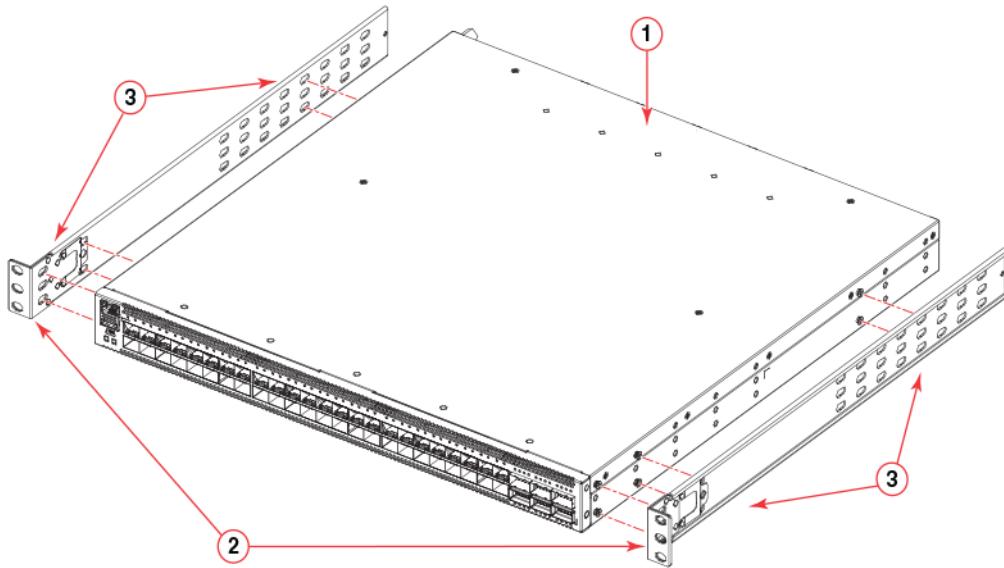
1	Top of the device	3	Keyhole fasteners (pre-installed)
2	Front brackets		

Installing the device in the rack

Complete the following steps to install the device in the rack.

1. Position the device in the rack, as shown in Figure 5, providing temporary support under the device until the rail kit is secured to the rack.

2. Attach the right front bracket to the right front rack post using two 10-32 x 5/8-in. panhead screws and two retainer nuts. Use the upper and lower holes in the bracket.

3. Attach the left front bracket to the left front rack post using two 10-32 x 5/8-in. panhead screws and two retainer nuts. Use the upper and lower holes in the bracket.

4. Tighten all the 10-32 x 5/8-in. screws to a torque of 25 in-lb (29 cm-kg).

FIGURE 5   Positioning the device in the rack
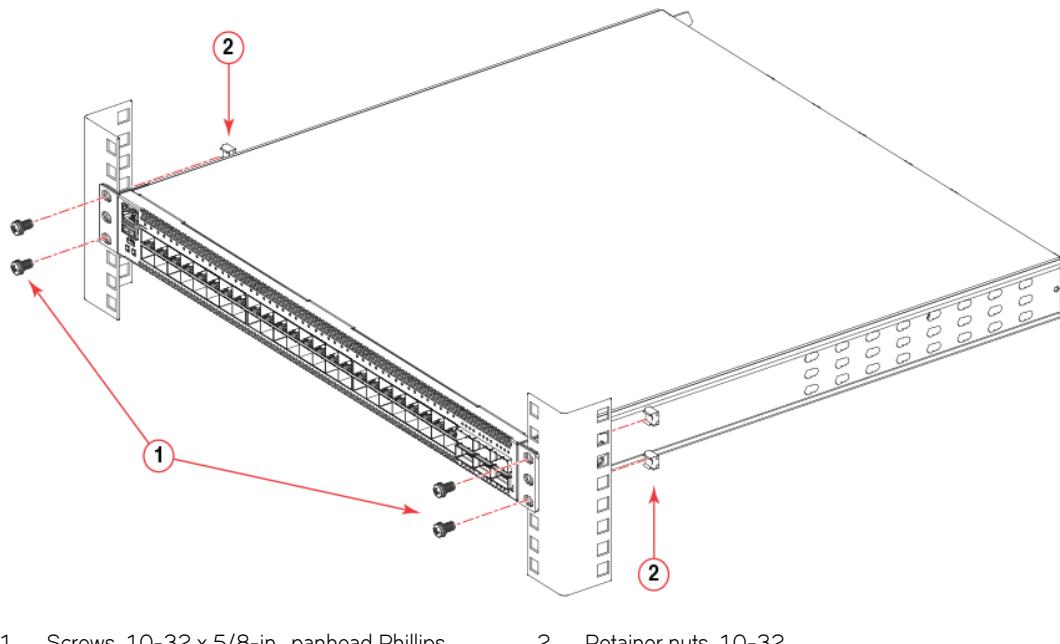
1	Screws, 10-32 x 5/8-in., panhead Phillips	2	Retainer nuts, 10-32

Attaching the rear brackets to the rack posts

Complete the following steps to attach the rear brackets to the rack posts.

1. Slide the right rear bracket into the right front bracket and the left rear bracket into the left front bracket.

2. Adjust the rear brackets to the rack depth.

3. Attach the right rear bracket to the right rear rack post using two 10-32 x 5/8-in. panhead screws and two retainer nuts, as shown in Figure 6. Use the upper and lower holes in the bracket.

4. Attach the left rear bracket to the left rear rack post using two 10-32 x 5/8-in. panhead screws and two retainer nuts. Use the upper and lower holes in the bracket.

5. Tighten all the 10-32 x 5/8-in. screws to a torque of 25 in-lb (29 cm-kg).

FIGURE 6 Attaching the rear brackets to the rack posts
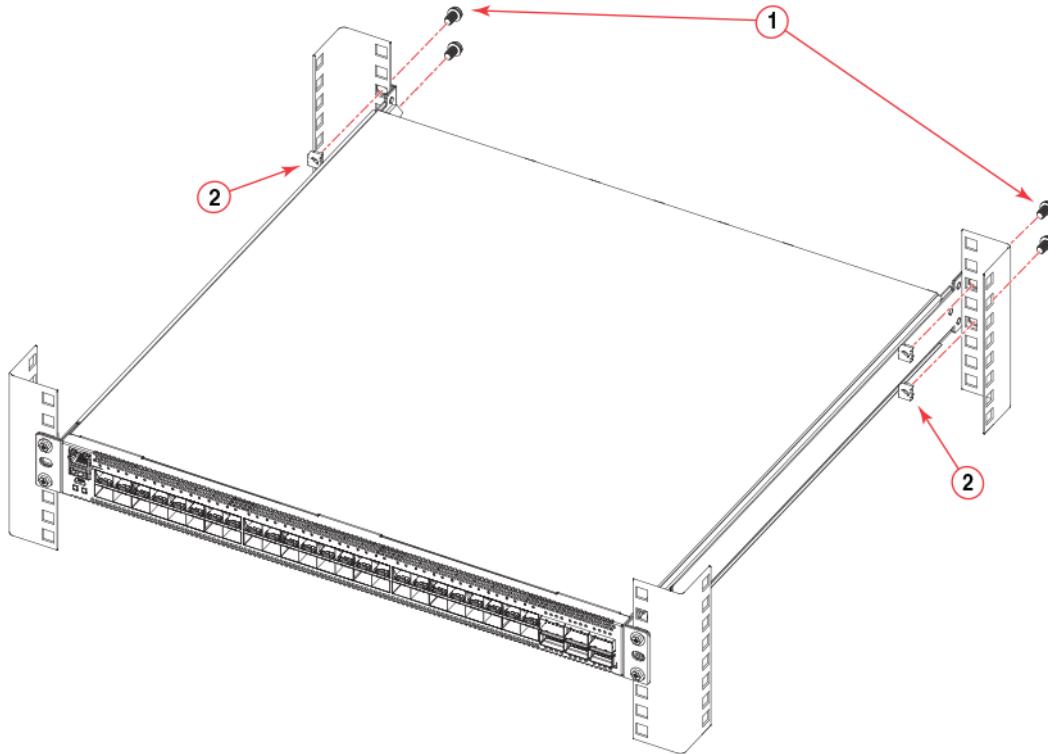
1	Screws, 10-32 x 5/8-in., panhead Phillips	2	Retainer nuts, 10-32

Installing the Universal Two-Post Rack Kit (XBR-R000294)

Use the following instructions to install an SLX 9140 switch in a two-post telecommunications (Telco) rack using the Universal Two-Post Rack Kit (XBR-R000294).

There are two ways you can mount the device in a four-post rack:

- With the port side flush with the posts
- With the switch mid-mounted on the posts

  NOTE
  Hardware devices illustrated in these procedures are only for reference and may not depict the device you are installing into the rack.

Time and items required

Allow 15 to 30 minutes to complete the installation.

The following items are required to install the device using the Universal Two-Post Rack Kit:

- #2 Phillips torque screwdriver
- 1/4-inch slotted-blade screwdriver

Parts list

The following parts are provided with the Universal Two-Post Rack Kit (XBR-R000294).

FIGURE 7 Rack kit parts
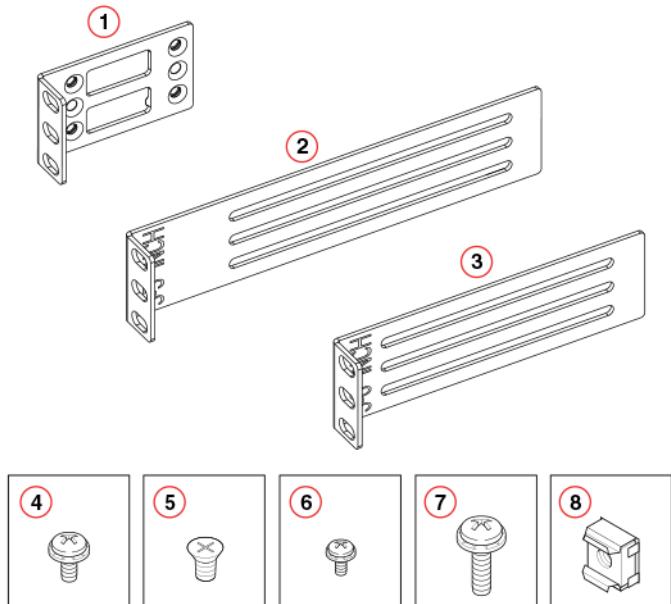
1	Front brackets (2)	5	Screw, 8-32 x 5/16-in., flathead Phillips (16)
2	Rear brackets, 5-6 inch post (2)	6	Screw, 6-32 x 1/4-in., panhead Phillips (8)
3	Rear brackets, 3-5 inch post (2)	7	Screw, 10-32 x 5/8-in., panhead Phillips (8)
4	Screw, 8-32 x 5/16-in., panhead Phillips (8)	8	Retainer nut, 10-32 (8)

Ensure that the items listed and illustrated in Figure 7 are included in the kit. Note that not all parts may be used with certain installations depending on the device type.

> **CAUTION**
> Use the screws specified in the procedure. Using longer screws can damage the device.

Flush-front mounting

> **CAUTION**
> The device must be turned off and disconnected from the fabric during this procedure.

Complete the following tasks to install the device in a two-post rack.

1. "Attaching the front brackets" on page 18
2. "Attaching the front brackets to the rack posts" on page 18
3. "Attaching the rear brackets to the rack posts" on page 19

4. "Attaching the rear brackets to the switch" on page 20

Attaching the front brackets

Complete the following steps to attach the front brackets to the switch.

1. Use a #2 Phillips screwdriver to remove the 12 pre-installed keyhole fasteners from both sides of the switch.

2. Position the right front bracket with the flat side against the right side of the switch as shown in Figure 8.

3. Insert four 8-32 x 5/16-in. flathead screws through the top and bottom holes of the two vertically aligned series of holes in the bracket and then into the pair of holes on the side of the switch.

4. Repeat step 1 and step 2 to attach the left front bracket to the left side of the switch.

5. Tighten all 8-32 x 5/16-in. screws to a torque of 15 in-lb. (17 cm-kg).

FIGURE 8   Attaching the front brackets
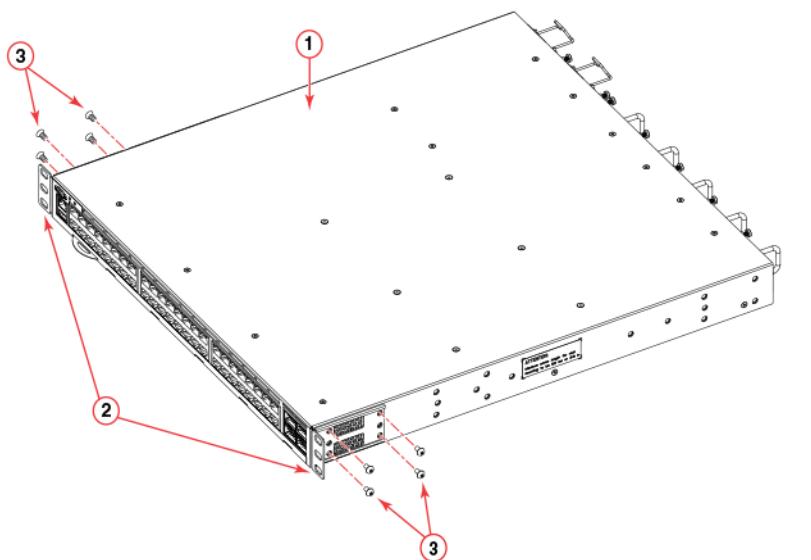
1	Top of the device	3	Screws, 8-32 x 5/16-in., flathead Phillips
2	Front brackets		

Attaching the front brackets to the rack posts

Complete the following steps to install the switch in the rack.

1. Position the switch in the rack (Figure 9), providing temporary support under the switch until the rack kit is fully secured to the rack.

2. Attach the right front bracket to the right rack upright using two 10-32 x 5/8-in. screws and two retainer nuts as shown in Figure 9. Use the top and bottom holes in the bracket.

3. Attach the left front bracket to the left rack upright using two 10-32 x 5/8-in. screws and two retainer nuts.

4. Tighten all the 10-32 x 5/8-in. screws to a torque of 25 in-lb. (29 cm-kg).

FIGURE 9   Attaching front brackets to a rack
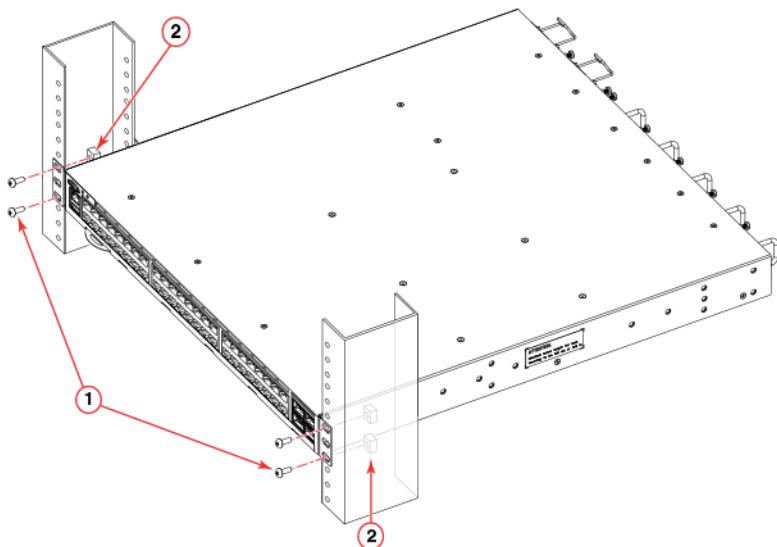
1	Screws, 10-32 x 5/8-in., panhead Phillips	2	Retainer nuts, 10-32

Attaching the rear brackets to the rack posts

Complete the following steps to attach the rear brackets to the rack.

1. Select the proper length bracket for your post width. If your posts are three to five inches wide, use the brackets marked 3-5 INCH. If your posts are five to six inches wide, use the brackets marked 5-6 INCH.

2. Position the right rear bracket in the right rear of the switch as shown in Figure 10.

3. Attach the brackets to the right rack upright using two 10-32 x 5/8-in. screws and two retainer nuts. Use the top and bottom holes in the bracket.

4. Repeat step 2 and step 3 to attach the left rear bracket to the left rack upright.

5. Tighten all the 10-32 x 5/8-in. screws to a torque of 25 in-lb. (29 cm-kg).

FIGURE 10 Attaching the rear brackets to a rack
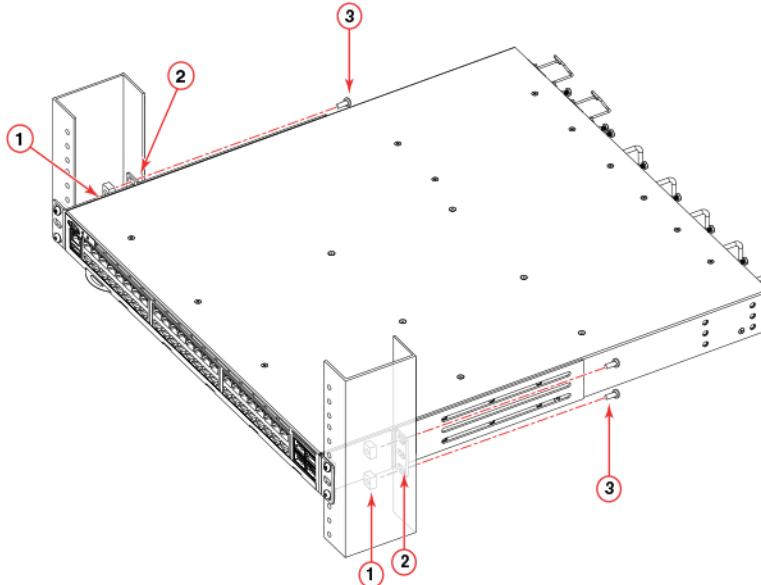
1	Retainer nuts, 10-32	3	Screws, 10-32 x 5/8-in., panhead Phillips
2	Rear brackets		

Attaching the rear brackets to the switch

Complete the following steps to attach the rear brackets to the switch.

1. Align the right rear bracket to the right rear of the switch and using four 8-32 x 5/16-in. panhead screws, attach the bracket to the switch as shown in Figure 11. Be sure to insert the screws through the upper and lower slots in the bracket.

2. Align the left rear bracket to the left rear of the switch and using four 8-32 x 5/16-in. panhead screws, attach the bracket to the switch. Again, use the upper and lower slots in the bracket.

3. Tighten all the 8-32 x 5/16-in. screws to a torque of 15 in-lb. (17 cm-kg).

FIGURE 11 Attaching the rear brackets to the switch
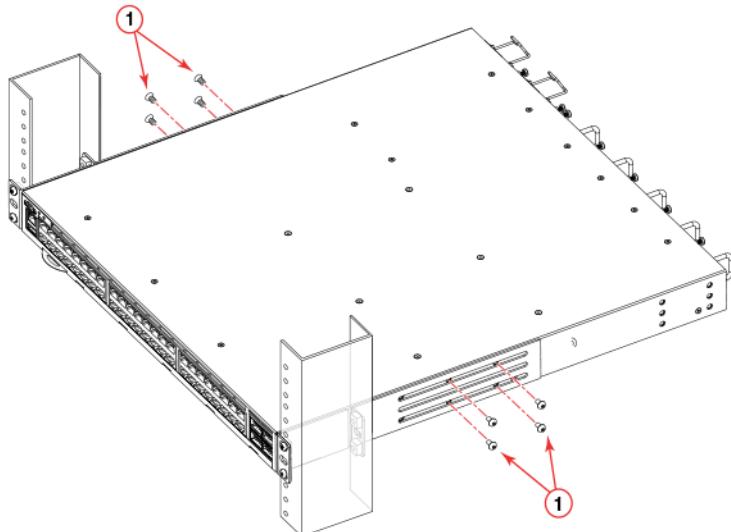
1   Screws, 8-32 x 5/16-in., panhead Phillips

Mid-mounting the switch

The mid-mounting is similar to the flush-front mounting except that the brackets are positioned differently on the device.

> ⚠️ **CAUTION**
> The device must be turned off and disconnected from the fabric during this procedure.

Complete the following tasks to install the device in a two-post rack.

1. "Attaching the front brackets" on page 21
2. "Attaching the front brackets to the rack posts" on page 22
3. "Attaching the rear brackets to the rack posts" on page 23
4. "Attaching the rear brackets to the switch" on page 24

Attaching the front brackets

Complete the following steps to attach the front brackets to the switch.

1. Use a #2 Phillips screwdriver to remove the 12 pre-installed keyhole fasteners from both sides of the switch.
2. Position the right front bracket with the flat side against the right side of the switch as shown in Figure 12.
3. Insert four 8-32 x 5/16-in. flathead screws through the top and bottom holes of the vertically aligned series of holes in the bracket and then into the pair of holes on the side of the switch.
4. Repeat step 1 and step 2 to attach the left front bracket to the left side of the switch.
5. Tighten all 8-32 x 5/16-in. screws to a torque of 15 in-lb. (17 cm-kg).

FIGURE 12 Attaching the front brackets
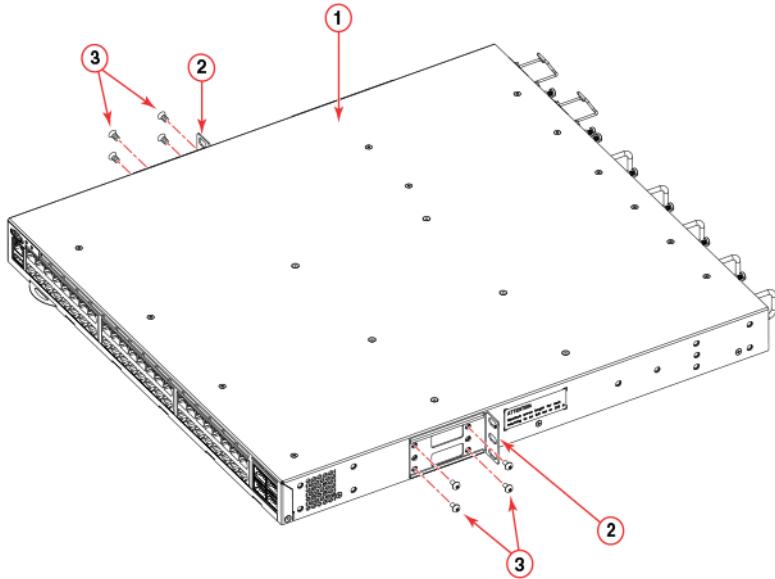
1	Top of the device	3	Screws, 8-32 x 5/16-in., flathead Phillips
2	Front brackets		

Attaching the front brackets to the rack posts

Complete the following steps to install the switch in the rack.

1. Position the switch in the rack (Figure 13), providing temporary support under the switch until the rack kit is fully secured to the rack.

2. Attach the right front bracket to the right rack upright using two 10-32 x 5/8-in. screws and two retainer nuts as shown in Figure 13.

3. Attach the left front bracket to the left rack upright using two 10-32 x 5/8-in. screws and two retainer nuts.

4. Tighten all the 10-32 x 5/8-in. screws to a torque of 25 in-lb. (29 cm-kg).

FIGURE 13 Attaching front brackets to a rack
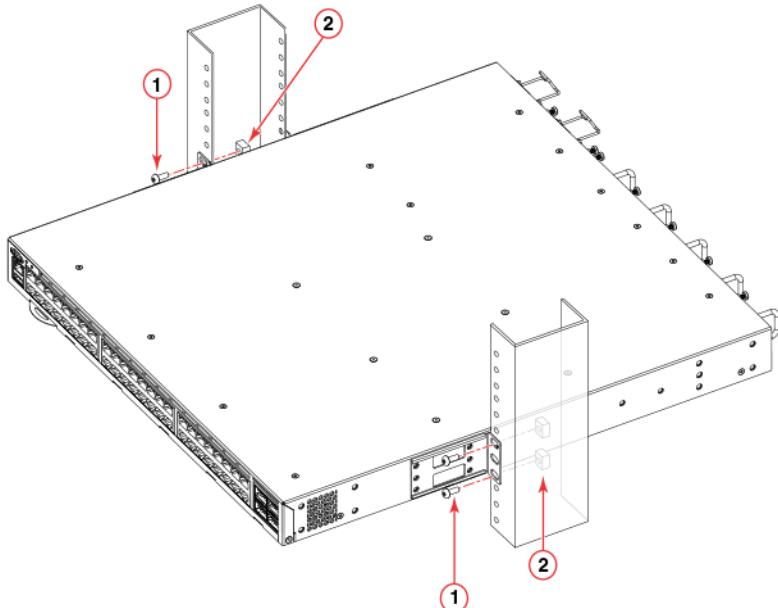
1	Screws, 10-32 x 5/8-in., panhead Phillips	2	Retainer nuts, 10-32

Attaching the rear brackets to the rack posts

Complete the following steps to attach the rear brackets to the rack.

1. Select the proper length bracket for your post width. If your posts are three to five inches wide, use the brackets marked 3-5 INCH. If your posts are five to six inches wide, use the brackets marked 5-6 INCH.

2. Position the right rear bracket in the right rear of the switch as shown in Figure 14. Whether you are using the 3-5 inch or 5-6 inch bracket, the rear end of the bracket will be flush with the back of the switch.

3. Attach the brackets to the right rack upright using two 10-32 x 5/8-in. screws and two retainer nuts.

4. Repeat step 2 and step 3 to attach the left rear bracket to the left rack upright.

5. Tighten all the 10-32 x 5/8-in. screws to a torque of 25 in-lb. (29 cm-kg).

FIGURE 14   Attaching the rear brackets to a rack
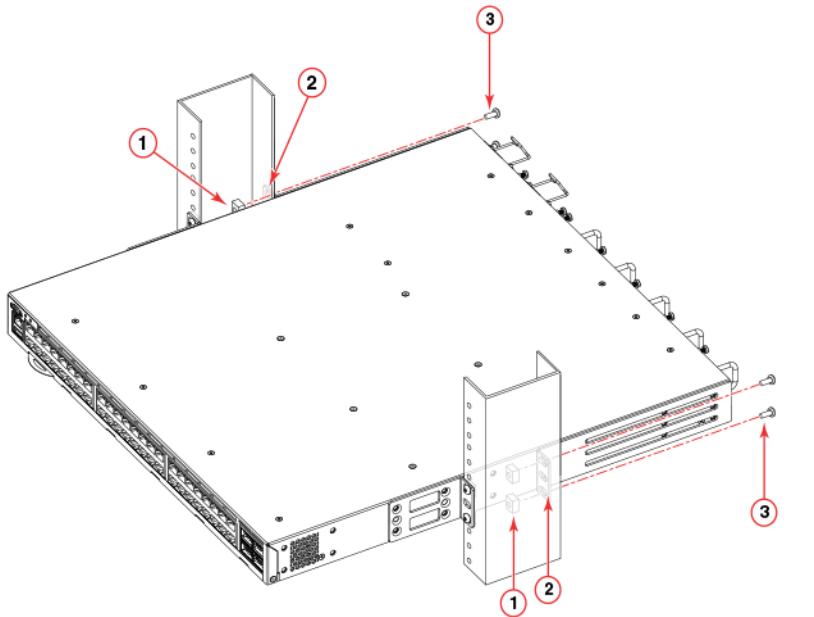
1	Retainer nuts, 10-32	3	Screws, 10-32 x 5/8-in., panhead Phillips
2	Rear brackets		

Attaching the rear brackets to the switch

Complete the following steps to attach the rear brackets to the switch.

1. Align the right rear bracket to the right rear of the switch and using four 8-32 x 5/16-in. panhead screws, attach the bracket to the switch as shown in Figure 15. Be sure to insert the screws through the upper and lower slots in the bracket.

2. Align the left rear bracket to the left rear of the switch and using four 8-32 x 5/16-in. panhead screws, attach the bracket to the switch. Again, use the upper and lower slots in the bracket.

3. Tighten all the 8-32 x 5/16-in. screws to a torque of 15 in-lb. (17 cm-kg).

FIGURE 15 Attaching the rear brackets to the switch
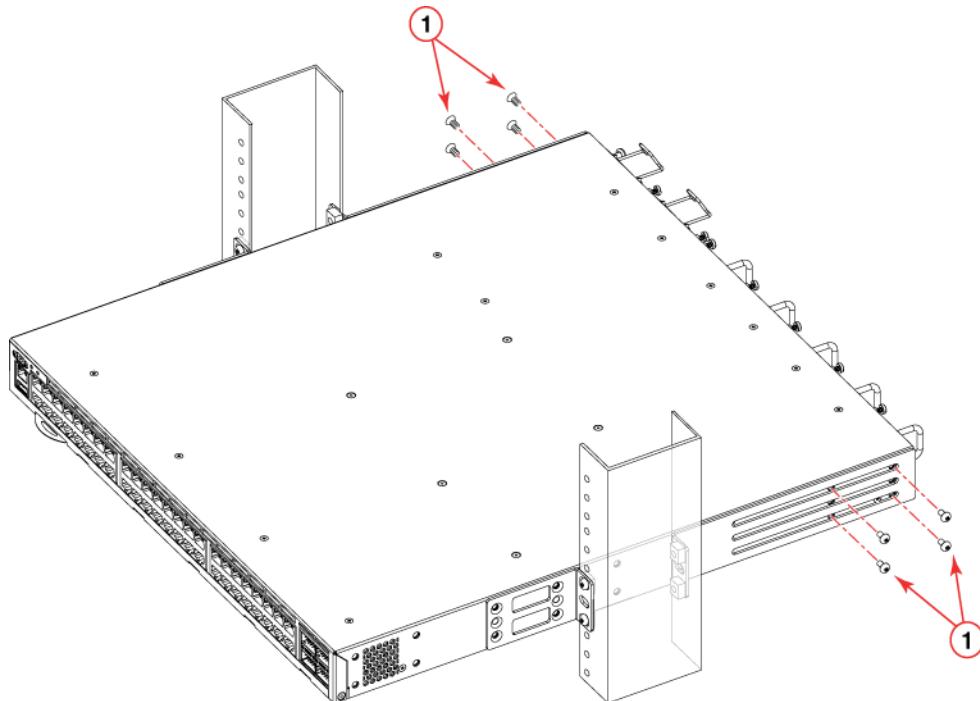
1   Screws, 8-32 x 5/16-in., panhead Phillips

Installing the Universal Four-Post Rack Kit (XBR-R000296)

Use the following instructions to install the SLX 9140 switch in EIA racks that are between 31.77 to 81.28 cm deep (12.51 to 32.0 in.) using the Universal Four-Post Rack Kit (XBR-R000296).

There are two ways you can mount the device in a four-post rack:

- With the port side flush with the front posts
- With the nonport side flush with the rear posts in a recessed position

A recessed position allows a more gradual bend in the fiber-optic cables connected to the switch and less interference in the aisle at the front of the rack.

> **NOTE**
> Hardware devices illustrated in these procedures are only for reference and may not depict the device you are installing into the rack.

Installation requirements

Provide space in an EIA rack with a distance of 31.77 to 81.28 cm (12.51 to 32.0 in.) between the front and back posts.

Review the installation and facility requirements for your product before mounting the device. Refer to "Facility requirements" on page 8 for more information.

Time and items required

Allow 15 to 30 minutes to complete the installation.

The following items are required to install the device using the Universal Four-Post Rack Kit:

- #2 Phillips torque screwdriver
- 1/4-inch slotted-blade screwdriver

Parts list

The following parts are provided with the Universal Four-Post Rack Kit (XBR-R000296).

FIGURE 16 Rack kit parts
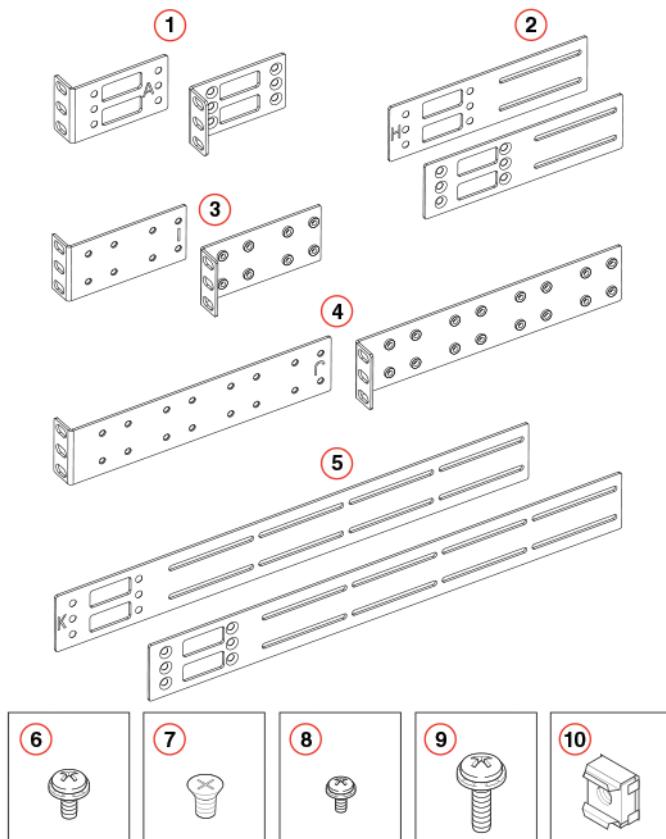
1	Front brackets (2)	6	Screw, 8-32 x 5/16-in., panhead Phillips (8)
2	Extension brackets, medium (2)	7	Screw, 8-32 x 5/16-in., flathead Phillips (16)
3	Rear brackets, short (2)	8	Screw, 6-32 x 1/4-in., panhead Phillips (8)
4	Rear brackets, long (2)	9	Screw, 10-32 x 5/8-in., panhead Phillips (8)
5	Extension brackets, long (2)	10	Retainer nut, 10-32 (8)

Ensure that the items listed and illustrated in Figure 16 are included in the kit. Note that not all parts may be used with certain installations depending on the device type.

⚠️ **CAUTION**
Use the screws specified in the procedure. Using longer screws can damage the device.

Flush-front mounting

⚠️ **CAUTION**
The device must be turned off and disconnected from the fabric during this procedure.

Complete the following tasks to install the device in a four-post rack.

Attaching the front brackets

Complete the following steps to attach the front brackets to the device.

1. Use a #2 Phillips screwdriver to remove the 12 pre-installed keyhole fasteners from both sides of the switch.

2. Position the right front bracket with the flat side against the right side of the device at the front of the device, as shown in Figure 17.

3. Insert four 8-32 x 5/16-in. flathead screws through the vertically aligned holes in the bracket and then into the holes on the side of the device. Use the upper and lower screw holes, leaving the center holes empty.

4. Repeat step 1 and step 2 to attach the left front bracket to the left side of the device.

5. Tighten all the 8-32 x 5/16-in. screws to a torque of 15 in-lb (17 cm-kg).

FIGURE 17 Attaching the front brackets
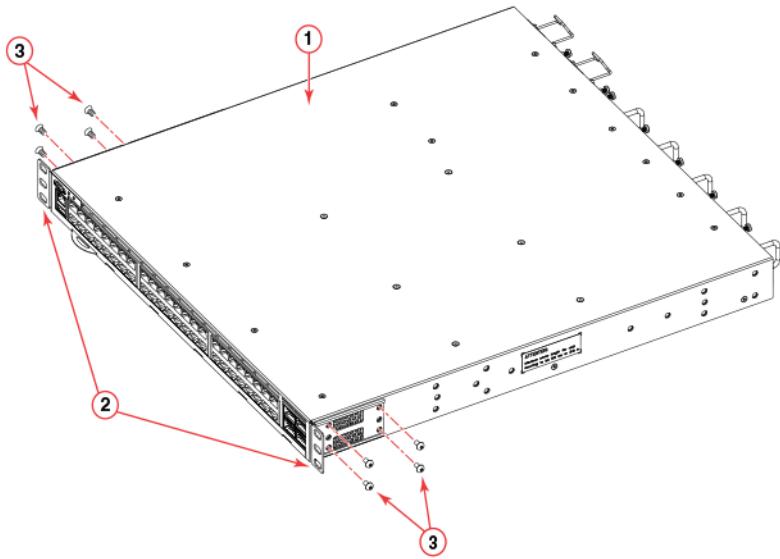
1	Top of the device	3	Screws, 8-32 x 5/16-in., flathead Phillips
2	Front brackets		

Attaching the extension brackets to the device

Complete the following steps to attach the extension brackets to the device. There are medium and long extension brackets that you can use for this step. Choose the correct extension bracket for the depth of your rack.

1. Select the proper length extension bracket for your rack depth.

2. Position the right extension bracket along the side of the device as shown in Figure 18.

3. Insert four 8-32 x 5/16-in. flathead screws through the vertically aligned holes in the extension bracket and then into the holes on the side of the device. Use the upper and lower screw holes, leaving the center holes empty.

4. Repeat step 2 and step 3 to attach the left extension bracket to the left side of the device.

5. Tighten all the 8-32 x 5/16-in. screws to a torque of 15 in-lb (17 cm-kg).

FIGURE 18 Attaching the extension brackets to the device
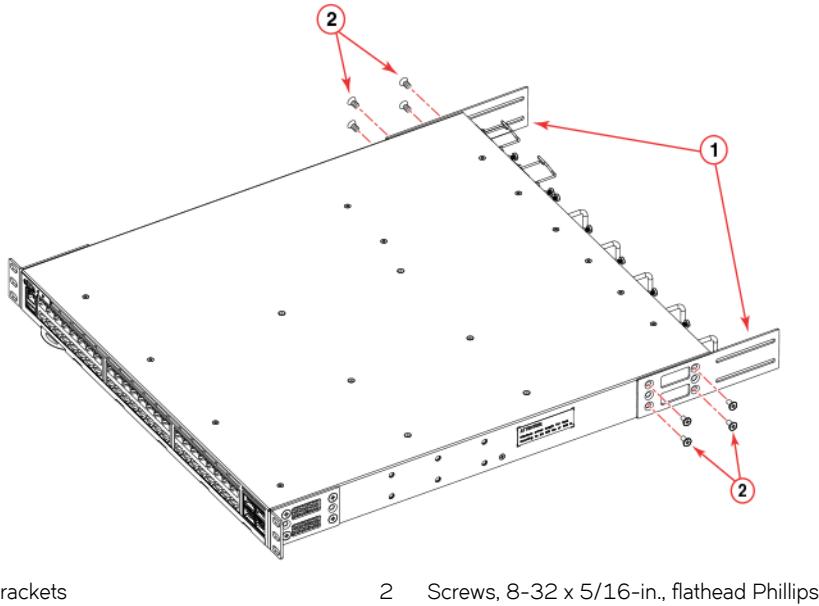
| 1 | Extension brackets | 2 | Screws, 8-32 x 5/16-in., flathead Phillips |

Installing the device in the rack

Complete the following steps to install the device in the rack.

1. Position the device in the rack, as shown in Figure 19, providing temporary support under the device until the rail kit is secured to the rack.

2. Attach the right front bracket to the right front rack post using two 10-32 x 5/8-in. panhead screws and two retainer nuts. Use the upper and lower holes in the bracket.

3. Attach the left front bracket to the left front rack post using two 10-32 x 5/8-in. panhead screws and two retainer nuts. Use the upper and lower holes in the bracket.

4. Tighten all the 10-32 x 5/8-in. screws to a torque of 25 in-lb (29 cm-kg).

FIGURE 19 Positioning the device in the rack
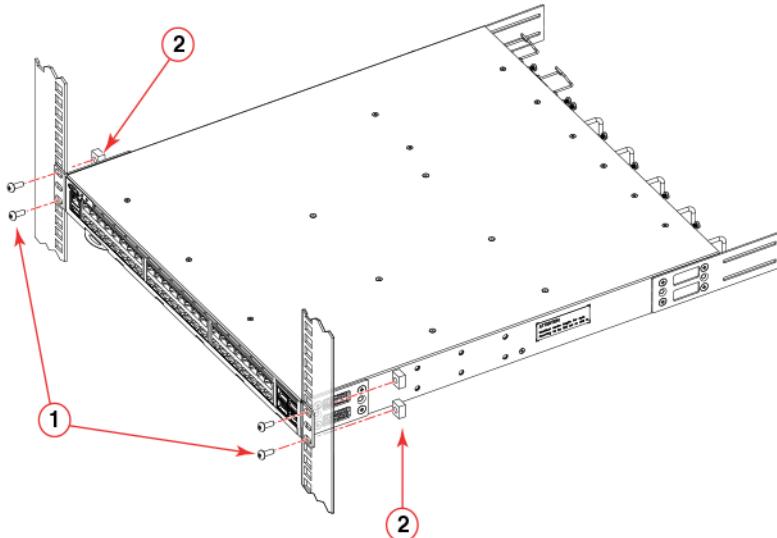
1	Screws, 10-32 x 5/8-in., panhead Phillips	2	Retainer nuts, 10-32

Attaching the rear brackets to the extensions

Complete the following steps to attach the rear brackets to the extensions. There are short and long rear brackets that you can use for this step. Choose the correct bracket for the depth of your rack.

1. Select the proper length rear bracket for your rack depth.

2. Slide the right rear bracket onto the right extension and attach to the extension by inserting four 6-32 x 1/4-in. panhead screws through the bracket holes. If possible, leave at least one empty vertical pair of holes between the screws for better support.

3. Repeat step 2 to attach the left rear bracket to the left extension.

4. Adjust the brackets to the rack depth and tighten all the 6-32 x 1/4-in. screws to a torque of 9 in-lb (10 cm-kg).

FIGURE 20 Attaching the rear brackets to the extensions
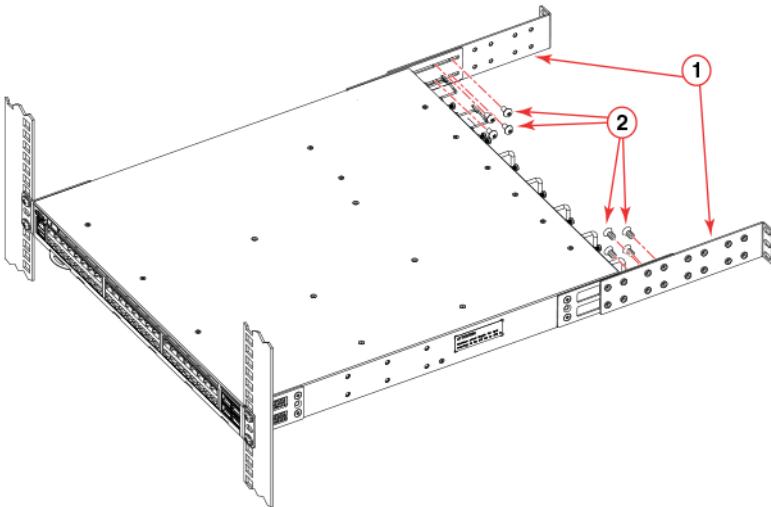
1	Rear brackets	2	Screws, 6-32 x 1/4-in., panhead Phillips

Attaching the rear brackets to the rack posts

Complete the following steps to attach the rear brackets to the rack posts.

1. Attach the right rear bracket to the right rear rack post using two 10-32 x 5/8-in. panhead screws and two retainer nuts, as shown in Figure 21. Use the upper and lower holes in the bracket.

2. Attach the left rear bracket to the left rear rack post using two 10-32 x 5/8-in. panhead screws and two retainer nuts. Use the upper and lower holes in the bracket.

3. Tighten all the 10-32 x 5/8-in. screws to a torque of 25 in-lb (29 cm-kg).

FIGURE 21 Attaching the rear brackets to the rack posts
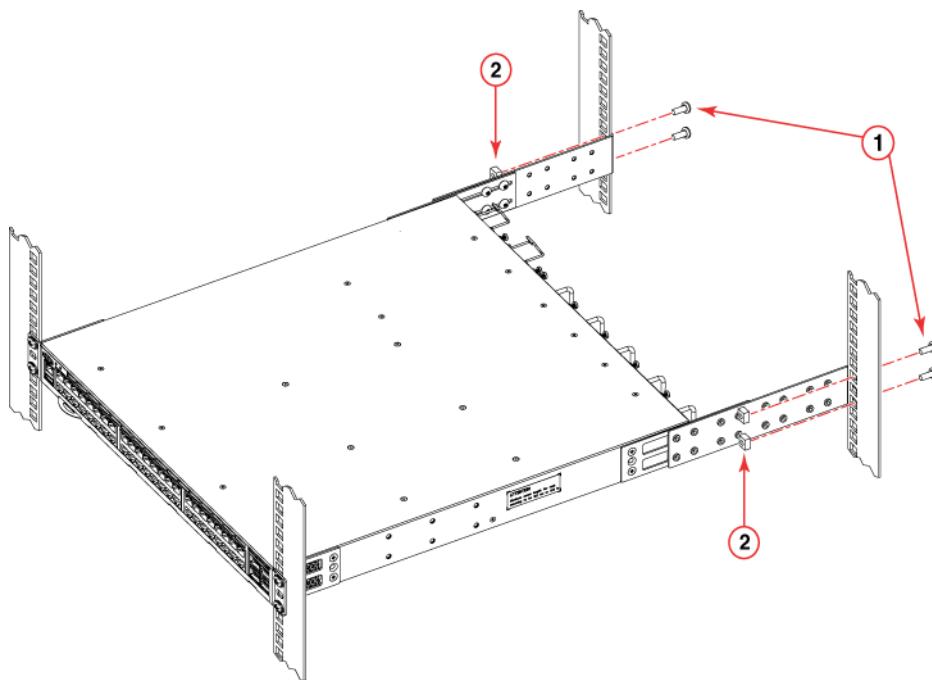
1	Screws, 10-32 x 5/8-in., panhead Phillips	2	Retainer nuts, 10-32

Flush-rear (recessed) mounting

The flush-rear (recessed) mounting is similar to the flush-front mounting except that the brackets are reversed on the device.

⚠️ **CAUTION**
The device must be turned off and disconnected from the fabric during this procedure.

Complete the following tasks to install the device in a four-post rack.

1. "Attaching the front brackets to the rear of the device" on page 32

2. "Attaching the extensions to the front of the device" on page 32

3. "Installing the device in the rack" on page 33

4. "Attaching the rear brackets to the extensions at the front of the device" on page 34

Attaching the front brackets to the rear of the device

> **NOTE**
> In this installation, the brackets are named as listed in the parts list even though the installation of the brackets is reversed from the flush-front installation.

Complete the following steps to attach the front brackets to the rear of the device.

1. Use a #2 Phillips screwdriver to remove the 12 pre-installed keyhole fasteners from both sides of the switch.

2. Position the right front bracket with the flat side against the right rear side of the device, as shown in Figure 22.

3. Insert four 8-32 x 5/16-in. flathead screws through the vertically aligned holes in the bracket and then into the holes on the side of the device. Use the upper and lower screw holes, leaving the center holes empty.

4. Repeat step 1 and step 2 to attach the left front bracket to the left rear side of the device.

5. Tighten all the 8-32 x 5/16-in. screws to a torque of 15 in-lb (17 cm-kg).

FIGURE 22 Attaching the front brackets to the rear of the device
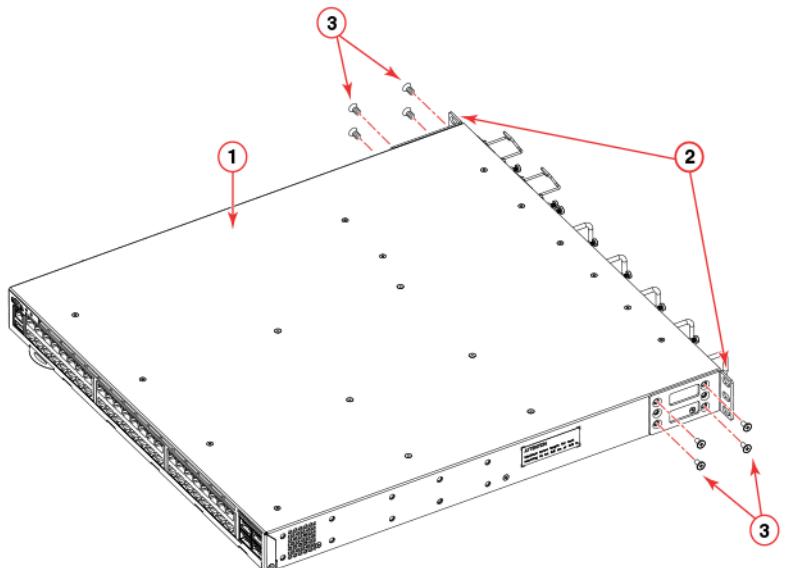
1	Top of the device	3	Screws, 8-32 x 5/16-in., flathead Phillips
2	Front brackets		

Attaching the extensions to the front of the device

Complete the following steps to attach the extension brackets to the front of the device. There are medium and long extension brackets that you can use for this step. Choose the correct extension for the depth of your rack.

1. Select the proper length extension bracket for your rack depth.

2. Position the right extension along the side of the device as shown in Figure 23.

3. Attach the bracket using four 8-32 x 5/16-in. flathead screws.

4. Repeat step 2 and step 3 to attach the left front extension to the left side of the device.

5. Tighten all the 8-32 x 5/16-in. screws to a torque of 15 in-lb (17 cm-kg).

FIGURE 23 Attaching the bracket extensions to the device
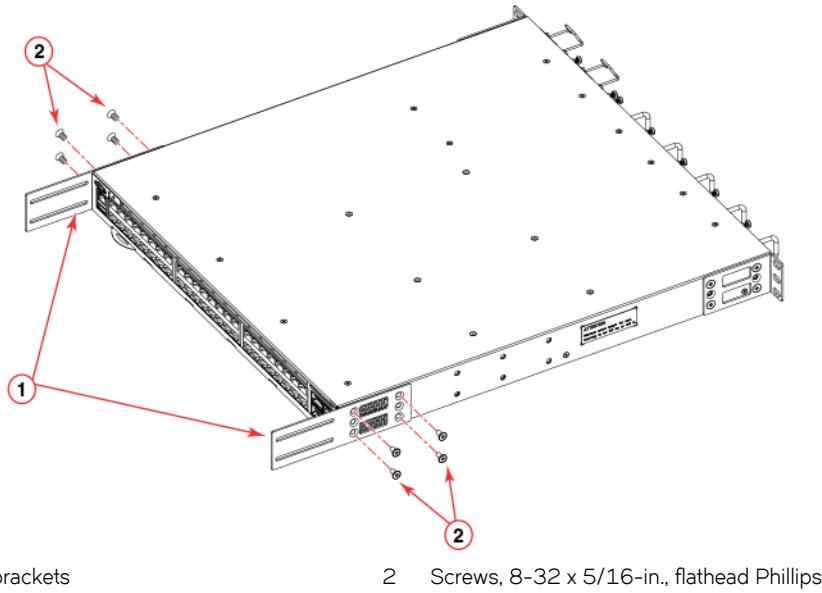

| 1 | Extension brackets | 2 | Screws, 8-32 x 5/16-in., flathead Phillips |

Installing the device in the rack

Complete the following steps to install the device in the rack.

1. Position the device in the rack, as shown in Figure 24, providing temporary support under the device until the rail kit is secured to the rack.

2. Attach the right front bracket to the right rear rack post using two 10-32 x 5/8-in. panhead screws and two retainer nuts. Use the upper and lower holes in the bracket.

3. Attach the left front bracket to the left rear rack post using two 10-32 x 5/8-in. panhead screws and two retainer nuts. Use the upper and lower holes in the bracket.

4. Tighten all the 10-32 x 5/8-in. screws to a torque of 25 in-lb (29 cm-kg).

FIGURE 24 Positioning the device in the rack
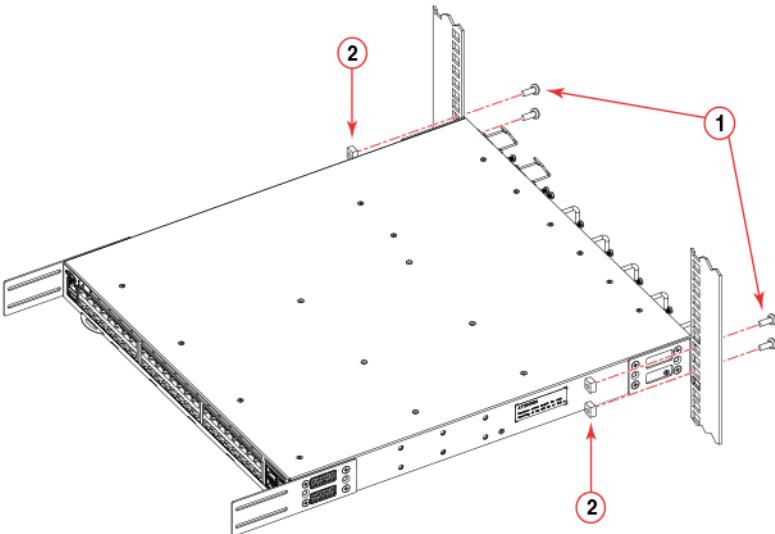
1	Screws, 10-32 x 5/8-in., panhead Phillips	2	Retainer nuts, 10-32

Attaching the rear brackets to the extensions at the front of the device

Complete the following steps to attach the rear brackets to the extensions. There are short and long front brackets that you can use for this step. Choose the correct bracket for the depth of your rack.

1. Select the proper length rear bracket for your rack depth.

2. Slide the right rear bracket onto the right extension, as shown in Figure 25.

   The short rear brackets are shown. Use the first and third vertical pairs of holes for the screws.

   Refer to Figure 26 for the positioning of the short or long brackets and screws.

3. Attach the brackets using four 6-32 x 1/4-in. screws.

4. Repeat step 2 and step 3 to attach the left rear bracket to the left extension.

5. Adjust the brackets to the rack depth and tighten all the 6-32 x 1/4-in. screws to a torque of 9 in-lb (10 cm-kg).

FIGURE 25 Attaching the rear brackets to the extensions at the front of the device
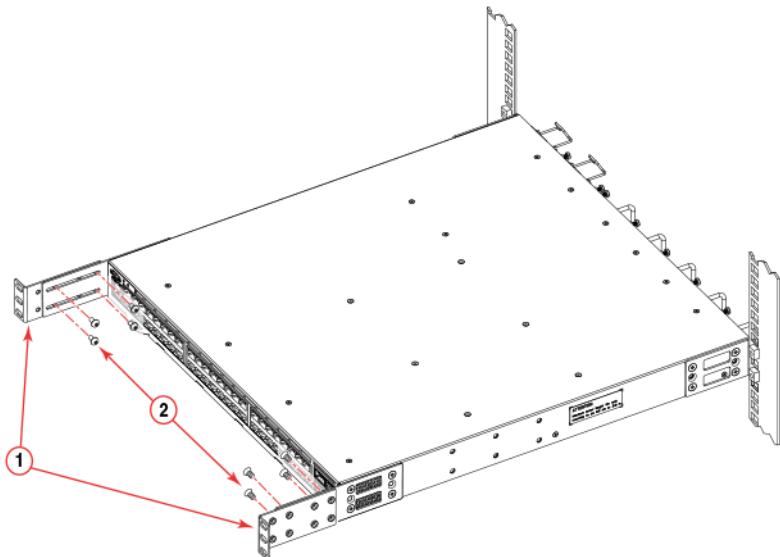
1	Rear brackets, short	2	Screws, 6-32 x 1/4-in., panhead Phillips

FIGURE 26 Attaching the short or long rear brackets to the extensions
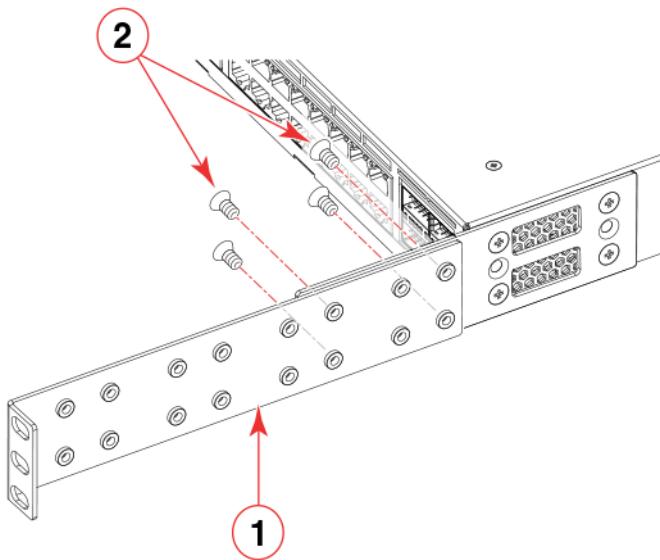
| 1	Rear bracket, short or long	2	Screws, 6-32 x 1/4-in., panhead Phillips

Attaching the rear brackets to the front rack posts

Complete the following steps to attach the rear brackets to the front rack posts.

1. Attach the right rear bracket to the right front rack post using two 10-32 x 5/8-in. screws and two retainer nuts, as shown in Figure 27. Use the upper and lower holes in the bracket.

2. Attach the left rear bracket to the left front rack post using two 10-32 x 5/8-in. screws and two retainer nuts. Use the upper and lower holes in the bracket.

3. Tighten all the 10-32 x 5/8-in. screws to a torque of 25 in-lb (29 cm-kg).

FIGURE 27 Attaching the rear brackets to the front rack posts
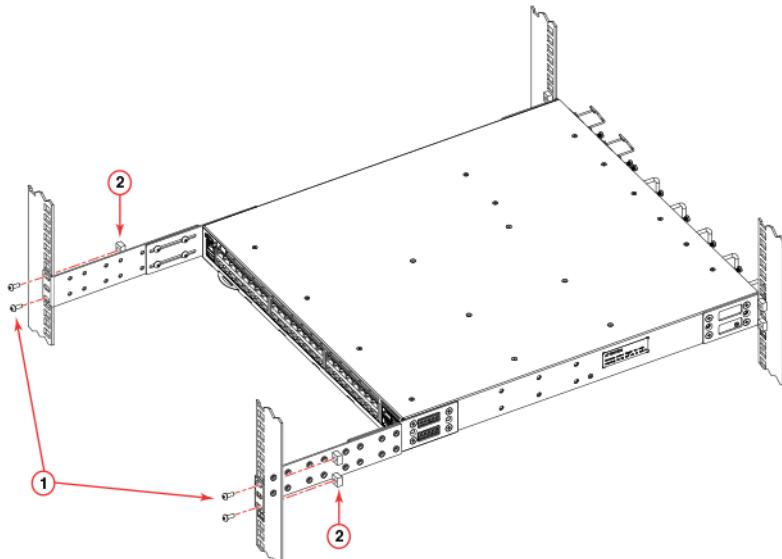
1	Screws, 10-32 x 5/8-in., panhead Phillips	2	Retainer nuts, 10-32

Initial Setup and Verification

Providing power to the device

After you complete the physical installation, you can power on the system.

1. Install alternating-current (AC) or direct-current (DC) power supplies in the switch. Refer to "Power Supplies" on page 49.

2. Connect AC or DC power cables to the power supply connectors on the rear panel.

   NOTE
   The equipment should be installed near a power source and in an easily accessible location.

3. Connect the power cables to the 100-240 VAC or 48-60 VDC power source. The power sources should be on separate circuits to protect against power failure. Ensure that the power cords have a minimum service loop of 6 inches available and are routed to avoid stress.

   NOTE
   Power is supplied to the device as soon as the first power supply is connected.

4. After the device has booted, verify that the power and status LEDs are green.

   The power supply LEDs display amber until power-on self-test (POST) is complete, and then change to green. The switch usually requires several minutes to boot and complete POST.

   NOTE
   To turn the system off, simply unplug the power cables.

For more information about how to interpret LEDs and run diagnostics tests, refer to "Diagnostic tests and monitoring" on page 48.

Establishing a first-time serial connection

To assign an IP address, you must have access to the command line interface (CLI). The CLI is a text-based interface that can be accessed through a direct serial connection to the device.

Access the CLI by connecting to the console port. After you assign an IP address, you can access the system through Telnet, or Extreme Network Advisor.

Perform the following steps to access the device through a serial connection.

1. Connect the serial cable to the console port on the device and to an RS-232 serial port on the workstation using the included RJ-45-to-RS-232 adapter.

   If the serial port on the workstation is RJ-45 instead of RS-232, remove the adapter on the end of the serial cable and insert the exposed RJ-45 connector into the RJ-45 serial port on the workstation.

For port pinout information for the mini-USB serial console port, refer to "Serial port specifications (pinout – mini-USB)" on page 64.

2. Disable any serial communication programs running on the workstation such as synchronization programs.

3. Open a terminal emulator application such as HyperTerminal on a Windows PC, or TERM, TIP, or Kermit in a UNIX environment, and configure the application as follows:

- In a Windows environment

  - Baud: 9600 bps

  - Data bits: 8

  - Parity: None

  - Stop bits: 1

  - Flow control: None

- In a UNIX environment using TIP, enter the following string at the prompt:

  ```
  tip /dev/ttyb -9600
  ```

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

  ```
  tip /dev/ttya -9600
  ```

Establishing an Ethernet connection

The Gigabit Ethernet management port (RJ-45) on the SLX 9140 switch front panel provides an out-of-band network connection to the device.

To manage the SLX 9140 switch through its management port, connect the port to the Ethernet network using Category 5 or better cable. Management of the SLX 9140 switch is described in detail in the *Extreme SLX-OS Management Configuration Guide* for the SLX 9140 and 9240 switches.

Installing Transceivers and Cables

Precautions specific to transceivers and cables

DANGER
All fiber-optic interfaces use Class 1 lasers.

DANGER
Laser radiation. Do not view directly with optical instruments. Class 1M laser products.

DANGER
Use only optical transceivers that are qualified by Extreme Networks, Inc. and comply with the FDA Class 1 radiation performance requirements defined in 21 CFR Subchapter I, and with IEC 825 and EN60825. Optical products that do not comply with these standards might emit light that is hazardous to the eyes.

DANGER
For safety reasons, the ESD wrist strap should contain a series 1 megohm resistor.

CAUTION
Before plugging a cable to any port, be sure to discharge any static charge stored on the cable by touching the electrical contacts to ground surface.

Cleaning the fiber-optic connectors

To avoid problems with the connection between the fiber-optic transceiver (SFP/SFP+/SFP28 or QSFP+/QSFP28) and the fiber cable connectors, Extreme strongly recommends cleaning both connectors each time you disconnect and reconnect them. Dust can accumulate in the connectors and cause problems such as reducing the optic launch power.

To clean the fiber cable connectors, Extreme recommends using a fiber-optic reel-type cleaner. When not using a fiber-optic transceiver connector, make sure to keep the protective covering in place.

Managing cables

The minimum bend radius for a 50 micron cable is 2 inches under full tensile load and 1.2 inches with no tensile load. Cables can be organized and managed in a variety of ways, for example, using cable channels on the sides of the rack or patch panels to minimize cable management. Follow these recommendations:

> **NOTE**
> You should not use tie wraps with optical cables because they are easily overtightened and can damage the optic fibers.

> **CAUTION**
> Before plugging a cable to any port, be sure to discharge any static charge stored on the cable by touching the electrical contacts to ground surface.

- Plan for rack space required for cable management before installing the switch.
- Leave at least 1 m (3.28 ft) of slack for each port cable. This provides room to remove and replace the switch, allows for inadvertent movement of the rack, and helps prevent the cables from being bent to less than the minimum bend radius.
- For easier maintenance, label the fiber-optic cables and record the devices to which they are connected.
- Keep LEDs visible by routing port cables and other cables away from the LEDs.
- Use hook and loop style straps to secure and organize fiber-optic cables.

Installing a fiber-optic transceiver

To monitor the transceivers, the **show media** command output shows the transceiver information for all interfaces on the device. Extreme provides support for third-party transceivers, but may require an Extreme transceiver be used for troubleshooting.

Support will not be provided if there is an issue with a third-party transceiver.

> **NOTE**
> Extreme-branded removable media devices are recommended for proper operation of the device.

You can install a new transceiver in a slot while the device is powered on and running. By default, a port automatically detects the transceiver media and its speed, and then configures the port accordingly. For ports not configured in breakout mode, a fixed speed can also be set using the CLI (refer to the *Extreme SLX-OS Command Reference* for the SLX 9140 and 9240 switches). Port speed changes are dynamic and do not require a system reboot. Any mismatch between a transceiver and port speed in "fixed speed" mode causes the port to be disabled. Note that the autonegotiation of link speed with a link partner is not supported on any port..

Installed transceivers are validated against a predefined list and categorized as Qualified, Unquallified, or Unsupported. Qualified transceivers operate normally. Unqualified transceivers are allowed to operate, but a log message is generated to inform the user. Unsupported transceivers are rejected and a port fault log message is generated.

Before installing a fiber-optic transceiver, have an ESD wrist strap available with a plug for connection to the ESD connector on the device.

> **DANGER**
> For safety reasons, the ESD wrist strap should contain a series 1 megohm resistor.

> **DANGER**
> Laser radiation. Do not view directly with optical instruments. Class 1M laser products.

ExtremeSwitching SLX 9140 Hardware Installation Guide

Use the following steps to install a transceiver.

1. Put on the ESD wrist strap and ground yourself by attaching the clip end to a metal surface (such as an equipment rack) to act as ground.

2. Remove the new transceiver from the protective packaging.

3. Remove any protector plugs from the transceivers and the ports.

4. Making sure that the bail (wire handle) is in the unlocked position, place the transceiver in the correctly oriented position on the port, as shown in Figure 28.

5. Slide the transceiver into the port until you feel it click into place; then close the bail. Transceivers are keyed to prevent incorrect insertion.

    NOTE
    Each fiber-optic transceiver has a 10-pad gold-plated edge connector on the bottom. The correct position to insert a fiber-optic transceiver in the upper row of ports is with the gold-plated edge down. The correct position to insert a fiber-optic transceiver in the lower row of ports is with the gold-plated edge up.

FIGURE 28   Installing an SFP+ transceiver in a port slot
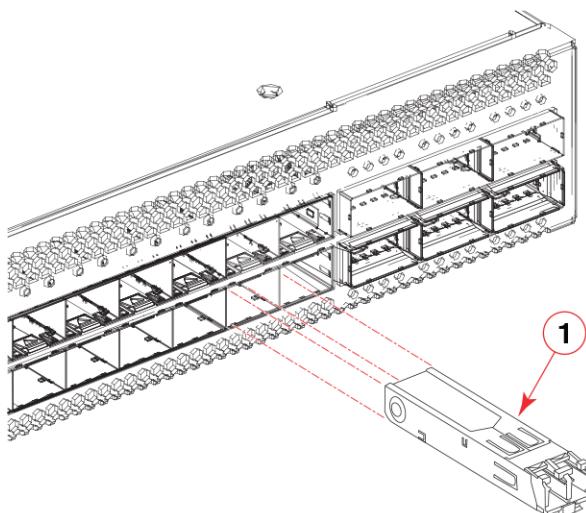
1   SFP+ transceiver

Replacing a fiber-optic transceiver

You can remove a fiber-optic transceiver from a slot and replace it with a new one while the SLX 9140 switch is powered on and running.

Removing a fiber-optic transceiver

While removing a fiber-optic transceiver, be sure to wear an ESD wrist strap that is connected to ground.

DANGER
For safety reasons, the ESD wrist strap should contain a series 1 megohm resistor.

Use the following steps to remove a fiber-optic transceiver from an SFP28 or QSFP28 slot.

1. Put on the ESD wrist strap and ground yourself by attaching the clip end to a metal surface (such as an equipment rack).

2. Disconnect the fiber cable connector from the port connector.

3. Unlock the fiber-optic transceiver by pulling the bail latch forward, away from the front of the slot.

   NOTE
   The QSFP+/QSFP28 transceivers do not have bails, but pull tabs. Always use the pull tab to insert or remove the QSFP+/QSFP28 transceivers, as the transceiver may be hot..

   NOTE
   The bail latch or pull tab may be attached to either the top or the bottom of the fiber-optic transceiver.

4. Grasp the bail latch and pull the fiber-optic transceiver out of the slot.

5. Store the copper or fiber-optic transceiver in a safe, static-free place or in an anti-static bag.

6. Install a new fiber-optic transceiver in the slot.

Connecting network devices

Extreme devices support connections to other vendors' routers, switches, and hubs, as well other Extreme devices.

Connectors

For port pinouts, refer to "Serial port specifications (pinout - mini-USB)" on page 64.

Connecting a network device to a copper port

For copper connections to another Extreme device or any other devices, use straight-through or crossover UTP cabling.

Automatic MDI or MDIX detection

All 10/100/1000 Mbps Ethernet copper ports on the devices support automatic Media Dependent Interface (MDI) and Media Dependent Interface Crossover (MDIX) detection. Automatic MDI or MDIX detection is enabled on all copper ports by default. For each port, you can disable automatic MDI or MDIX, designate the port as an MDI port, or designate the port as an MDIX port.

For more information about automatic MDI or MDIX detection and configuration details, refer to the *Extreme SLX-OS Management Configuration Guide* for the SLX 9140 and 9240 switches.

Connecting a network device to a fiber port

For direct attachment from the device to a network interface card, switch, or router, using a fiber-optic transceiver, you will need fiber cabling with an LC connector.

To connect the device to another network device using a fiber port, you must complete the following tasks:

- Install a fiber-optic transceiver (SFP/SFP+/SFP28 or QSFP+/QSFP28). Refer to "Installing a fiber-optic transceiver" on page 40.
- Cable the fiber-optic transceiver

Cabling a fiber-optic transceiver

Use the following steps to cable a fiber-optic transceiver.

1. Remove the protective covering from the fiber-optic port connectors and store the covering for future use.

2. Before cabling a fiber-optic transceiver, Extreme strongly recommends cleaning the cable connectors and the port connectors. For more information, refer to "Cleaning the fiber-optic connectors" on page 39.

3. Gently insert the cable connector (a tab on each connector should face upward) into the transceiver connector until the tab locks into place.

4. Observe the link and activity LEDs to determine if the network connections are functioning properly. For more information about the LED indicators, refer to "LED activity interpretation" on page 45.

   NOTE
   To verify that an SLX 9140 switch can reach another device through the network, use the **ping** command at any level of the CLI. For more information, refer to the *Extreme SLX-OS Command Reference* for the SLX 9140 and 9240 switches.

Monitoring the Device

LED activity interpretation

System activity and status can be determined through the activity of the LEDs on the device.

There are three possible LED states: off (no light), a steady light, and a flashing light. Flashing lights may be slow, fast, or flickering. The LED colors are either green or amber.

Sometimes, the LEDs flash either of the colors during boot, POST, or other diagnostic tests. This is normal; it does not indicate a problem unless the LEDs do not indicate a healthy state after all boot processes and diagnostic tests are complete.

SLX 9140 port-side LEDs

The SLX 9140 switch has the following LEDs on the front panel:

- One power single-color status LED (green)

- One status bicolor status LED (green and amber)

- Two management single-color LEDs (green) for speed and link

- 48 SFP28 port single color status LEDs (green) that indicate 1/10 GbE or 25 GbE mode of operation

- Four single-color status LEDs (green) for each of the six QSFP28 ports that indicate the status of the ports in 100 GbE mode, 2x50* GbE mode, 40 GbE mode, 4x25* GbE mode, and 4x10 GbE mode

* Not currently supported by software.

Figure 29 shows the LEDs on the SLX 9140 front panel.

FIGURE 29 SLX 9140 port-side LEDs
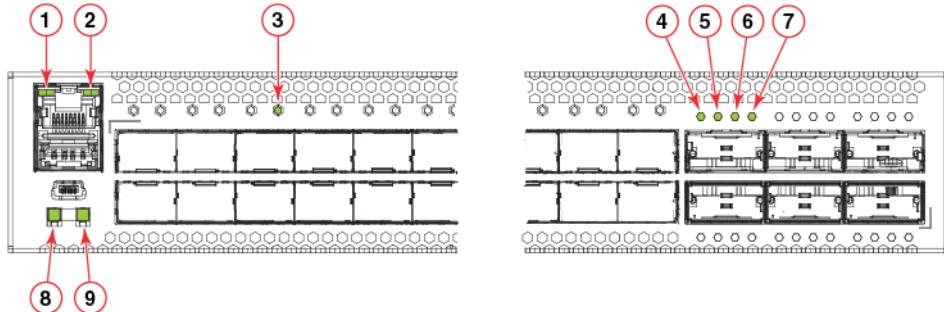
1	Management port link LED	6	QSFP28 port 4x25/10 GbE mode lane 3 link/activity LED
2	Management port speed LED	7	QSFP28 port 4x25/10 GbE mode lane 4 link/activity LED
3	SFP28 ports 1-48 link/activity LEDs	8	Power LED
4	QSFP28 port 100/40 GbE and 2x50 GbE mode link/activity LED or 4x25/10 GbE mode lane 1 link/activity LED	9	Status LED
5	QSFP28 port 4x25/10 GbE mode lane 2 link/activity LED		

SLX 9140 nonport-side LEDs

The SLX 9140 switch has the following LEDs on the rear panel:

- Power supply LEDs: Two single-color status LEDs (green) on each installed power supply
- Fan assembly LEDs: One single-color status LED (green) on each installed fan assembly (the SLX 9140 switch is shipped with five fan assemblies)

Figure 30 shows the LEDs on the SLX 9140 switch rear panel.

FIGURE 30 SLX 9140 nonport-side LEDs
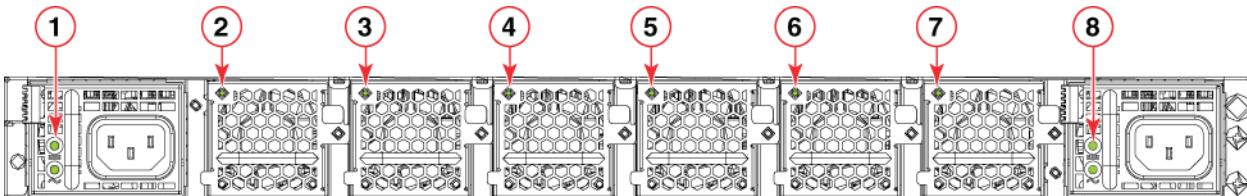
1	Power supply 1 status LEDs	5	Fan 4 fan assembly LED
2	Fan 1 fan assembly LED	6	Fan 5 fan assembly LED
3	Fan 2 fan assembly LED	7	Fan 6 fan assembly LED
4	Fan 3 fan assembly LED	8	Power supply 2 status LEDs

LED patterns

The following tables describe the SLX 9140 switch LED patterns.

TABLE 3   Power LED

LED state	Status of hardware	Recommended action
Off (no light)	System is off or there is no power.	Verify the system is on and has completed booting.
Steady green	System is on.	No action required.

TABLE 4   Status LED

LED state	Status of hardware	Recommended action
Off (no light)	System is off or there is no power.	No action required.
Steady green	Normal operation.	No action required.
Alternate green-amber	System has detected a fault.	Contact support.

TABLE 5   Management port left (link) status LED

LED state	Status of hardware	Recommended action
Off (no light)	Not cabled.	No action required.
Steady green	A link is up.	No action required.

TABLE 6   Management port right (speed) status LED

LED state	Status of hardware	Recommended action
Off (no light)	Link is up in 1 GbE mode or no link.	No action required.
Steady green	Link is up in 100 Mbps mode.	No action required.

TABLE 7   1/10/25 GbE SFP28 port LEDs

LED state	Status of hardware	Recommended action
Off (no light)	Not cabled.	No action required.
Steady green	Link is up.	No action required.
Blinking green	There is traffic and packets are being transmitted or received.	No action required.

TABLE 8   100/40 GbE mode QSFP28 port LEDs (left-side LED only)

LED state	Status of hardware	Recommended action
Off (no light)	Not cabled.	No action required.
Steady green	Link is up in 100 GbE or 40 GbE mode.	No action required.
Blinking green	There is traffic and packets are being transmitted or received.	No action required.

TABLE 9   4x10 GbE mode QSFP28 port LEDs (all four LEDs)

LED state	Status of hardware	Recommended action
Off (no light)	Not cabled.	No action required.
Steady green	Port lane link is up in 4x10 GbE mode.	No action required.
Blinking green	There is traffic and packets are being transmitted or received.	No action required.

TABLE 10   Power supply input LED

LED state	Status of hardware	Recommended action
Off (no light)	Power supply is not receiving external power.	Verify that the power supply power cord is connected to a functioning power source.
Steady green	Power supply is receiving external power.	No action required.
Blinking green (with power cord connected)	Power supply has a fault.	Replace the power supply.

TABLE 11   Power supply output LED

LED state	Status of hardware	Recommended action
Off (no light)	Power supply is not powered on.	Verify that the power supply power cord is connected to a functioning power source.
Steady green	Power supply is on and functioning properly.	No action required.
Blinking green (with power cord connected)	Power supply has a fault.	Replace the power supply.

TABLE 12   Fan assembly LED

LED state	Status of hardware	Recommended action
Off (no light)	Fan assembly is not powered on.	No action required.
Steady green	Fan assembly is on and functioning properly.	No action required.
Blinking green	Fan assembly has a fault.	Replace the fan assembly.

Diagnostic tests and monitoring

The Extreme device is engineered for reliability and requires no routine operational steps or maintenance. You can monitor the device by paying attention to the following information:

- The LEDs showing the status of system components
- A description of the operations that the device performs when you power it on

The following commands can be especially helpful in monitoring the health status of various device components. For details about these commands, refer to the *Extreme SLX-OS Command Reference* for the SLX 9140 and 9240 switches.

- **show chassis**
- **show system**
- **show environment fan**
- **show environment power**
- **show environment sensor**
- **show environment temp**

Power Supplies

Power supply overview

The SLX 9140 switch supports alternating-current (AC) and direct-current (DC) power supplies. The SLX 9140 switch is capable of running on one power supply and five fan assemblies. The second power supply and sixth fan assembly provide redundancy.

If the second power supply and sixth fan assembly slots are unused, you must cover them with filler panels.

> **NOTE**
> Extreme recommends that the SLX 9140 switch operate with two power supplies and five fan assemblies installed. If a power supply or fan assembly fails, it must be replaced as soon as possible.

> **NOTE**
> AC and DC power supplies can be installed and used in the same device.

The power supplies in the SLX 9140 switch chassis can be removed and replaced without special tools. The device can continue operating during the replacement.

The device supports the following types of power supplies:

- AC power supply with nonport-side air exhaust. This unit moves the air from the port side to the nonport side of the device.
- AC power supply with nonport–side air intake. This unit moves the air from the nonport side to the port side of the device.
- DC power supply with nonport-side air exhaust. This unit moves the air from the port side to the nonport side of the device.
- DC power supply with nonport-side air intake. This unit moves the air from the nonport side to the port side of the device.

FIGURE 31 AC power supply
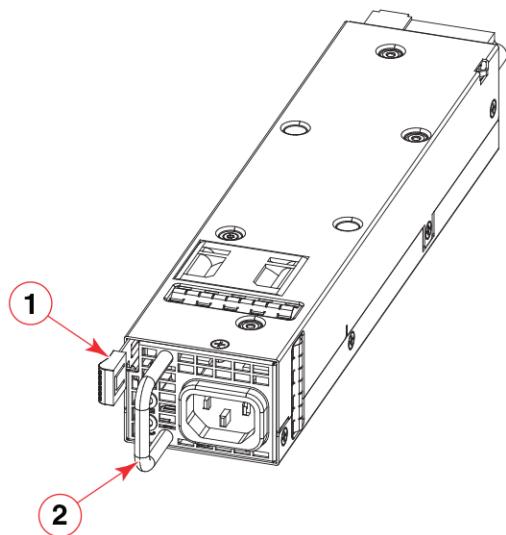
1	Release lever	2	Power supply handle

FIGURE 32 DC power supply
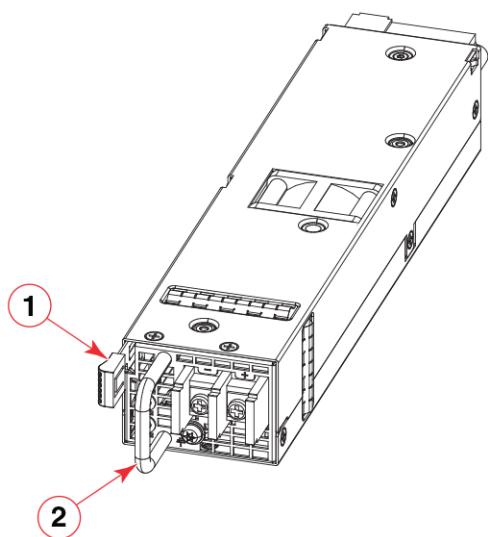
1	Release lever	2	Power supply handle

Precautions specific to power supplies

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

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

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

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

CAUTION
If you do not install a 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.

Identifying the airflow direction

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

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

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

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

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

Time and items required

Installing or removing and replacing a power supply should require less than five minutes to complete.

A new power supply (with the same airflow direction as the power supply being replaced) is required to replace a power supply.

Replacing a power supply

When installing or replacing a power supply unit, keep in mind the following:

- Power supplies can be swapped in or out while the device is running. The remaining power supply provides enough power for the device.

- The airflow direction of the power supply must match that of the installed fan assemblies. All must be either exhaust or intake.

> **CAUTION**
> Power supplies are hot-swappable. However, they should be inserted or removed without a power cord being connected to a power source to avoid damage.

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

Inserting a new AC power supply

Use the following steps to install an AC power supply in the SLX 9140 switch.

FIGURE 33   Installing an AC power supply unit
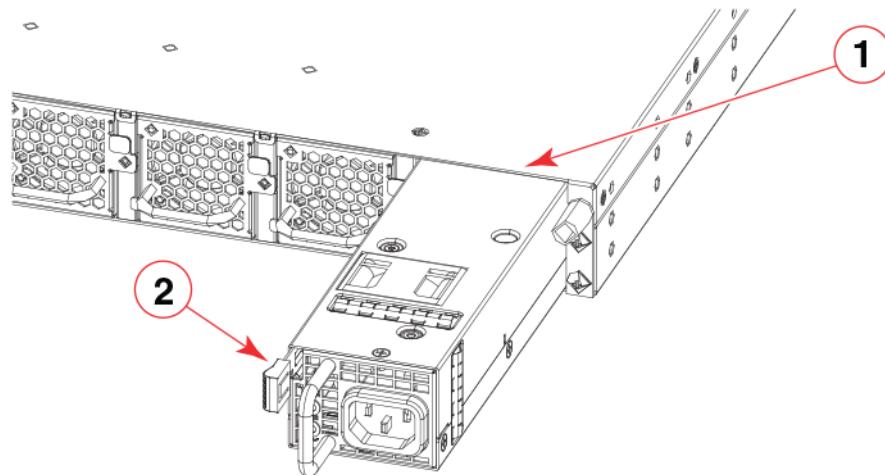
| 1 | Power supply slot | 2 | Release lever |

1. If replacing a power supply, remove the previously installed power supply from the appropriate slot by pressing the release lever and pulling the power supply handle.

2. If installing a new power supply into a slot covered with a filler panel:

     a.   Press the release lever on the filler panel.

     b.   Remove the filler panel.

3.   Before opening the package that contains the power supply, touch the bag to the switch casing to discharge any potential static electricity. Extreme recommends using an ESD wrist strap during installation.

4.   Remove the power supply from the anti-static shielded bag.

5.   Holding the power supply level, guide it into the carrier rails on each side and gently push it all the way into the slot, ensuring that it firmly engages with the connector and the release lever clicks into its locked position.

When the SLX 9140 switch is powered on, the LEDs on the power supply rear panel should light up green to confirm that the power supply is correctly installed and supplying power.

> ⚠️ **CAUTION**
> If you do not install a power supply in a slot, you must keep the slot filler panel in place. If you run the device with an uncovered slot, the system will overheat.

Inserting a new DC power supply

> ⚠️ **CAUTION**
> All devices with DC power supplies are intended for installation in restricted access areas only. A restricted access area is where access can be gained only by service personnel through the use of a special tool, lock and key, or other means of security, and is controlled by the authority responsible for the location.

> **NOTE**
> This equipment installation must meet NEC/CEC code requirements. Consult local authorities for regulations.

Use the following steps to install a DC power supply in the SLX 9140 switch.

FIGURE 34 Installing a DC power supply unit
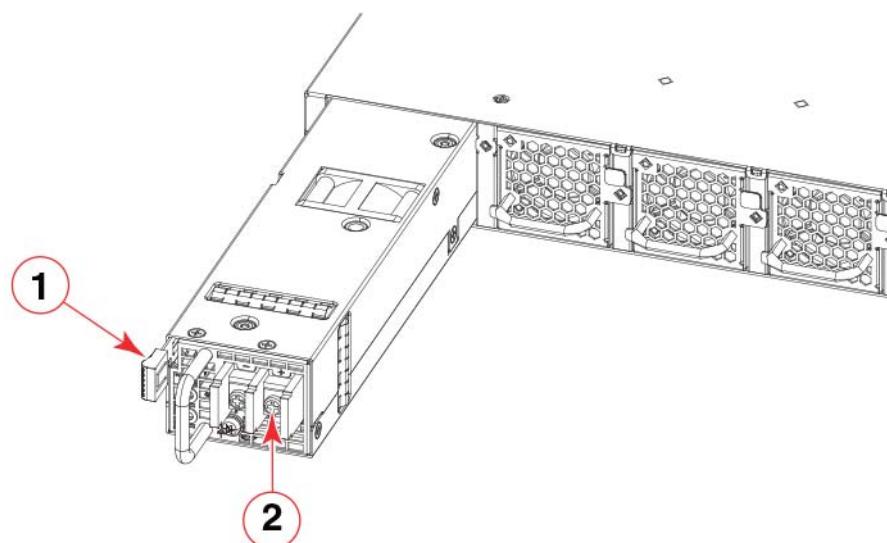
1	Release lever	2	DC power supply terminals

1. Make sure DC power is disconnected at the circuit breaker before proceeding.

2. Prepare the power and safety grounding wires using the appropriate size wire. Crimp on ring lugs and heat shrink tube for all three wires. Due to the limited space for the safety ground wire, Extreme recommends using a 90-degree angled lug such as:

   - TE Connectivity Solistrand "16-14HD 90 Ring 8," part number 184269-1 for 14 AWG wire.

   - PIDG 12-10 Ring #8, 90-DEG, part number 1958340-1 for 12 or 10 AWG wire.

3. Remove the previously installed power supply from the appropriate slot by pressing the release lever and pulling the power supply handle.

4. Before opening the package that contains the DC power supply, touch the bag of the switch casing to discharge any potential static electricity. Extreme recommends using an ESD wrist strap during installation.

5. Remove the DC power supply from the anti-static shielded bag.

6. Remove the DC terminals plastic cover.

7. Attach the safety grounding wire to the power supply using the safety ground screw.

8. Attach the DC power supply wires to the power supply DC power terminals, matching the polarity. Refer to Figure 35.

FIGURE 35 DC power supply wiring terminals
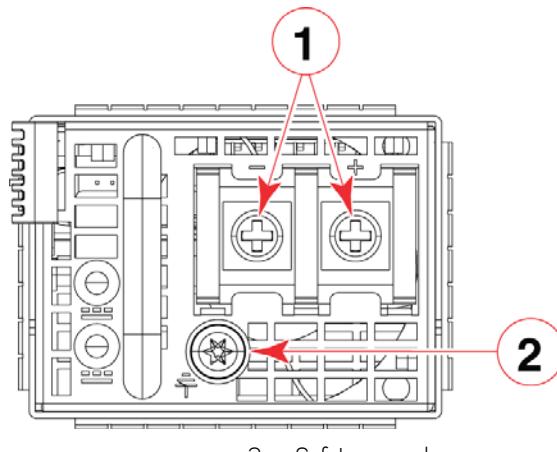
| 1 | DC power terminals | 2 | Safety ground screw |

9. Make sure the screws are tight with no wire touching the ground screw.

10. Using the handle on the power supply, hold the power supply level and guide it into the power supply slot. Gently push the power supply all the way into the slot, ensuring that it firmly engages with the connector and the release lever clicks into its locked position.

When the SLX 9140 switch is powered on, the power LED on the front of the device should turn green to confirm that the power supply is correctly installed and supplying power. Refer to "LED activity interpretation" on page 45.

Grounding the SLX 9140 switch

The rear panel of the SLX 9140 switch includes a dual-screw grounding terminal for NEBS-compliant grounding. The surface area around this terminal is not painted to provide a good electrical connection. Before connecting power to the device, the grounding terminal must be connected to ground to meet NEBS compliance.

FIGURE 36 Connecting the grounding terminal
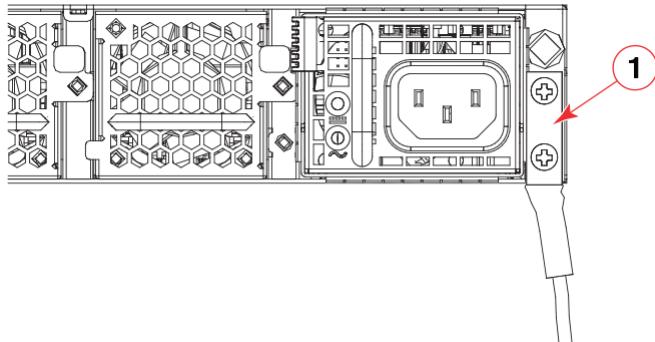
1   Grounding terminal

CAUTION
For the NEBS-compliant installation of an Extreme device with AC or DC systems, use a ground wire of at least 6 AWG. The ground wire should have an agency-approved crimped connector (provided with the device) attached to one end, with the other end attached to building ground. The connector must be crimped with the proper tool, allowing it to be connected to both ground screws on the enclosure. Before crimping the ground wire into the provided ground lug, ensure that the bare copper wire has been cleaned and antioxidant is applied to the bare wire. In addition, anti-rotation devices or lock washers must be used with all screw connections for the grounding wire.

NOTE
The lug must be sized according to NEC/CEC requirements. A typical installation would require:

- Lug, copper, suitable wire size, #10 2-hole, 5/8" centers. For #10 ga. wire, some example lugs are:
  - Panduit LCD10-10AF-L
  - Pencom EL1244
  - Hardware Specialties 912302
- Screw, 10-32, ½", qty 2
- Washer, #10, external locking, qty 2"

Perform the following steps to connect to the grounding terminal.

1. Ensure that the rack in which the SLX 9140 switch is mounted is properly grounded and in compliance with local regulations.

2. Ensure that there is a good electrical connection to the grounding point on the rack (no paint or isolating surface treatment).

3. Crimp the included grounding lug to a grounding wire of at least 6 American Wire Gauge (AWG). The 6 AWG wire and grounding lug should be crimped together using a proper tool.

4. Attach the 6 AWG stranded copper wire to the grounding terminal on the SLX 9140 switch using the screws, flat washers, and lock washers included in the grounding kit.

5. Attach the grounding wire to a grounding point.

NOTE
The terminal for the connection of a grounding conductor is not to be used with an aluminum conductor.

NOTE
To ensure adequate bonding when attaching the ground lug, a minimum of 20 in-lb (2.76 Nm) of torque is required to be applied to the mounting hardware used to attach the ground lug.

Fan Assemblies

Fan assembly overview

The SLX 9140 device includes 6 hot-swappable fan unit slots. It is shipped with 5 fan FRUs for a (4+1) redundancy. The device can run on 1 power supply and 4 fan assemblies. The fifth fan assembly and the second power supply provide additional redundancy. It is not possible to use the sixth fan slot for SLX 9140 devices shipped with 5 fan assemblies. If the second power supply and any fan slots are unused, you must cover them with filler panels.

> **NOTE**
> Extreme recommends that the SLX 9140 switch operates with 2 power supplies and 5 fan assemblies installed. If a power supply or fan assembly fails, it must be replaced as soon as possible.

The fan assemblies in the SLX 9140 switch chassis can be removed and replaced without special tools. The device can continue operating during the replacement.

The device supports the following types of fan assemblies:

- Fan assembly with nonport–side air exhaust. This unit moves the air from the port side to the nonport side of the device.
- Fan assembly supply with nonport–side air intake. This unit moves the air from the nonport side to the port side of the device.

FIGURE 37 Fan assembly

| 1 | Captive screw | 2 | Fan assembly handle |

Precautions specific to fan assemblies

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

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

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

CAUTION
If you do not install a 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.

Identifying the airflow direction

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

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

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

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

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

Time and items required

Installing or removing and replacing a fan assembly should require less than five minutes to complete.

The following items are required to replace a fan assembly:

- New fan assembly (must have the same airflow direction as the fan assembly being replaced)
- #1 Phillips screwdriver

Replacing a fan assembly

When installing or replacing a fan assembly unit, keep in mind the following:

- Fan assemblies can be swapped in or out while the device is running. The remaining fan assemblies provide enough airflow for the device.
- The airflow direction of the fan assembly must match that of the installed fan assemblies. All must be either exhaust or intake.

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

Inserting a new fan assembly

Use the following steps to install a fan assembly in the SLX 9140 switch.

FIGURE 38 Installing a fan assembly
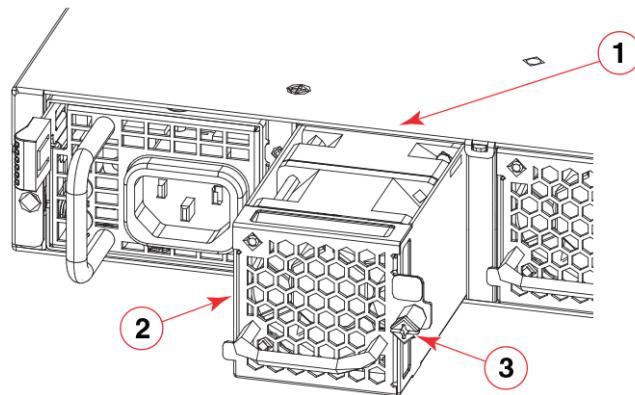
| 1 | Fan assembly slot | 3 | Captive screw |
| 2 | Fan assembly | | |

1. If replacing a fan assembly:

   a. Using a Phillips screwdriver, unscrew the captive screw on the fan assembly.

   b. Remove the fan assembly from the chassis by pulling the handle on the fan assembly out and away from the chassis.

   c. Ensure that the replacement fan assembly has the same part number and airflow label as the fan assembly being replaced.

2. If installing a new fan assembly into a slot covered with a filler panel:

    a.   Using a Phillips screwdriver, unscrew the captive screw on the filler panel.

    b.   Remove the filler panel.

3. Before opening the package that contains the new fan assembly, touch the bag to the switch casing to discharge any potential static electricity. It is recommended that you wear an ESD wrist strap during installation.

4. Remove the fan assembly from the anti-static shielded bag.

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

5. Holding the fan assembly level, guide it into the carrier rails on each side and gently push it all the way into the slot, ensuring that it firmly engages with the connector.

6. When you are sure the fan assembly has properly engaged the connector, tighten the captive screw to secure the fan assembly in the slot.

NOTE
The fans are controlled automatically by the device.

When a fan assembly is installed in a slot, the power LED on the fan assembly should turn green to confirm that the fan assembly is correctly installed and running. Refer to "LED activity interpretation" on page 45.

CAUTION
If you do not install a 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.

SLX 9140 Switch Technical Specifications

System specifications

System component	Description
Enclosure	Chassis-mountable on a desktop, or in a standard 2- or 4-post rack
Power supplies	Dual redundant, hot-swappable power supplies supported with 650 W AC intake or exhaust airflow, or 650 W DC intake or exhaust airflow.
Fans	Five (4+1) redundant, hot-swappable fan assemblies with intake or exhaust airflow. A sixth fan assembly can be installed for extended temperature range performance.
Cooling	Forced-air cooling front-to-back or back-to-front
System architecture	Non-blocking shared-memory switch
System processors	Intel Broadwell-DE D-1508 dual-core CPU running at 2.2 GHz

Ethernet

System component	Description	Maximum ports supported
100 GbE QSFP28 ports	100/40 GbE QSFP28 ports	6
25 GbE SFP28 ports	25/10/1 GbE SFP28 ports	48
Ethernet management port	RJ-45 port with 10/100/1000 Mbps auto-negotiating capability	1

LEDs

System component	Description
Device status and management	Two LED types indicate device status: Power (power supply) Status (diagnostics)
Ports	LEDs indicate port status (link/activity)

Other

System component	Description
Serial cable	1 (Mini-USB to RJ-45)
RJ-45 to DB9 adapter	1 (RJ-45 port to female DB9 connector)
AC power cord	IEC 320-C14

Weight and physical dimensions

Height	Width	Depth	Fully loaded weight (no transceivers)
4.37 cm 1.72 inches	44.0 cm 17.32 inches	44.47 cm 17.51 inches	8.99 kg 19.82 lb

Environmental requirements

Condition	Operational	Non-operational
Ambient temperature[*]	-5°C to 50°C (23°F to 122°F) (F2B) -5°C to 45°C (23°F to 113°F) (B2F), temporarily to 55°C with 6 fan assemblies	-40°C to 70°C (-40°F to 158°F)
Relative humidity	5% to 95% at 50°C (122°F)	5% to 95% at 70°C (158°F)
Altitude	0 to 3,000 m (9,843 ft) safety -60 to 4,000 m (13,123 ft) operational	0 to 12,000 m (39,370 ft)
Shock	20 G, 11 ms, half-sine wave	33 G, 11 ms, half-sine wave
Vibration	1 G sine, 0.4 grms random, 5-500 Hz	2.4 G sine, 1.1 grms random, 5-500 Hz
Airflow	134 cfm (estimated with 2 power supplies, 5 fan assemblies)	N/A
Heat dissipation (worst case)	DC power supply 475 W AC power supply 489 W	N/A
Operating noise	52.6 dBA (5 fan assemblies, 25°C, typical loading)	N/A
MTBF (25°C, 60% CL, Telec)	303,683 hours with DC power supply 324,414 hours with AC power supply	N/A

[*]. Worst case operational temperature is measured at sea level with at least 4 fan assemblies, with maximum power consumption optics modules (5W QSFP28/2W SFP28) fully loaded.

Power supply specifications (per power supply)

Power supply model	Maximum output power rating (DC)	Input voltage	Input line frequency	Maximum input current	Input line protection	Maximum inrush current
XBR-ACPWR-650-F	650 W	100-240V	50-60Hz	12 A	Fuses	25A
XBR-ACPWR-650-R	650 W	100-240V	50-60Hz	12 A	Fuses	25A
XBR-DCPWR-650-F	650 W	-48 - -60V	-	14 A	Fuses	25A
XBR-DCPWR-650-R	650 W	-48 - -60V	-	13.3 A	Fuses	25A

Power consumption (typical configuration)

All 25 GbE and two 100 GbE ports are linked up, loading with 10 percent traffic rate. Five fan assemblies. Fans at nominal speed.

@100 VAC Input (Input power ±5%)	@200 VAC Input (Input power ±5%)	@-48VDC	Minimum number of power supplies	Notes
174 W 594 BTU/hr	171 W 583 BTU/hr	173 W 590 BTU/hr	1 x 650 W AC 1 x 650 W DC	1 power supply
184 W 628 BTU/hr	181 W 618 BTU/hr	183 W 624 BTU/hr	1 x 650 W AC 1 x 650 W DC	2 power supplies

Power consumption (maximum configuration)

All 25 GbE and six 100 GbE ports are linked up, loading with 100 percent traffic rate. Two power supplies and five fan assemblies. Fans at high speed.

@100 VAC Input (Input power ±5%)	@200 VAC Input (Input power ±5%)	@-48VDC	Minimum number of power supplies	Notes
475.9 W 1,624 BTU/hr	451.9 W 1,542 BTU/hr	456.3 W 1,557 BTU/hr	1 x 650 W AC 1 x 650 W DC	1 power supply
488.9 W 1,668 BTU/hr	474.7 W 1,620 BTU/hr	474 W 1,617 BTU/hr	1 x 650 W AC 1 x 650 W DC	2 power supplies

Data port specifications (Ethernet)

Port type	Number (in module)	Description
100 GbE	6	QSFP28 ports, compatible with LR4 or SR4 optical transceivers, or direct attached copper cable
25 GbE	48	SFP28 ports, compatible with ER, LR, LRM, SR, ZR, or USR optical transceivers

Serial port specifications (pinout – mini-USB)

Pin	Signal	Description
1	Reserved	Not used
2	UART0_RX	Debug port (data received by SLX)
3	UART0_TX	Console port (data transmitted by SLX)
4	Reserved	Not used
5	GND	Ground

Serial port specifications (protocol)

Parameter	Value
Baud	9600
Data bits	8
Parity	None
Stop bits	1
Flow control	None

Memory specifications

Memory	Type	Size
Main memory	DDR4	16 GB
Boot Flash	NOR Flash	32 MB
SSD	M.2 SATA III (2 slots)	64 GB per slot

Regulatory compliance (EMC)

- FCC Part 15, Subpart B (Class A)
- EN 55032 (CE mark) (Class A)
- EN 55024 (CE mark) (Immunity) for Information Technology Equipment
- ICES-003 (Canada) (Class A)
- AS/NZ 55032 (Australia/New Zealand) (Class A)
- VCCI (Japan) (Class A)
- EN 300 386
- CNS 13438 (BSMI) (Taiwan) (Class A)
- KN 32 (South Korea) (Class A)
- KN 35 (South Korea) (Class A)
- TCVN 7189 / TCVN 7317 (Vietnam) (Class A)
- EN 61000-3-2

- EN 61000-3-3

Regulatory compliance (safety)

- CAN/CSA-C22.2 No. 60950/UL 60950 - Safety of Information Technology Equipment
- EN 60825 Safety of Laser Products - Part 1: Equipment Classification, Requirements and User's Guide
- EN 60950/IEC 60950 Safety of Information Technology Equipment

Regulatory compliance (environmental)

- 2014/35/EU and 2014/30/EU
- 2011/65/EU – Restriction of the use of certain hazardous substance in electrical and electronic equipment (EU RoHS)
- 2012/19/EU – Waste electrical and electronic equipment (EU WEEE)
- 94/62/EC – packaging and packaging waste (EU)
- 2006/66/EC – batteries and accumulators and waste batteries and accumulators (EU battery directive)
- 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (EU REACH)
- Section 1502 of the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 – U.S. Conflict Minerals
- 30/2011/TT-BCT – Vietnam circular
- SJ/T 11363-2006 Requirements for Concentration Limits for Certain Hazardous Substances in EIPs (China)
- SJ/T 11364-2006 Marking for the Control of Pollution Caused by EIPs (China)

Regulatory compliance (environmental)

Regulatory Statements

USA (FCC CFR 47 Part 15 Warning)

This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

> **NOTE**
> Changes or modifications made to this device which are not expressly approved by Extreme could void the user's authority to operate the equipment.

Industry Canada statement

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

English translation of above statement

This Class A digital apparatus complies with Canadian ICES-003.

Europe and Australia (CISPR 32 Class A Warning)

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

Germany (Noise Warning)

Maschinenlärminformations-Verordnung - 3. GPSGV, der höchste Schalldruckpegel beträgt 52 dB(A) gemäss EN ISO 7779.

English translation of above statement

Machine noise information regulation - 3. GPSGV, the highest sound pressure level value is 52 dB(A) in accordance with EN ISO 7779.

Japan (VCCI)

この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準
に基づくクラスＡ情報技術装置です。この装置を家庭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。

English translation of above statement

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

Japan power cord

注意 – 添付の電源コードを他の装置や用途に
使用しない
添付の電源コードは本装置に接続し、使用する
ことを目的として設計され、その安全性が確認
されているものです。決して他の装置や用途に
使用しないでください。火災や感電の原因とな
る恐れがあります。

English translation of above statement

ATTENTION: Never use the power cord packed with your equipment for other products.

Korea

Ａ급 기기 (업무용 방송통신기기): 이 기기는 업무용 (Ａ급) 으로 전자파적합등록
을 한 기기이오니 판매자 또는 사용자는 이 점을 주의하시기 바라며 , 가정외의 지역
에서 사용하는 것을 목적으로 합니다 .

English translation of above statement

Class A device (Broadcasting Communication Device for Office Use): This device obtained EMC registration for office use (Class A), and may be used in places other than home. Sellers and/or users need to take note of this.

China

 China-CCC Warning statements
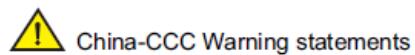
在维修的时候一定要断开所有电源 (English translation "disconnect all power sources before service")

 For non tropical use:
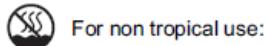
安全说明和标记	汉文	"仅适用于非热带气候条件下安全使用。"
	藏文	《ᠬᠣᠯᠢᠭ᠎ᠠ ᠮᠡᠷᠭᠡᠨ᠎ᠠ ... ᠬᠣᠯᠢᠭ᠎ᠠ ᠷ᠍᠎᠍》᠂••
	蒙古文	"ᠴᠥᠪᠥᠶᠢᠨ ᠬᠣᠯᠠ ᠬᠢ ᠭᠠᠳᠠᠰᠤ ᠭᠠᠲᠠᠰᠤ ᠮᠡᠷᠭᠡᠨ ᠪᠠᠢᠢᠰᠤ ᠬᠣᠯᠠ ᠶᠢᠨ ᠳᠡᠷᠡ ᠴᠢᠳᠬᠤᠭᠰᠠᠨ ᠪᠡᠶ ᠲᠡᠷᠢ ᠺᠣᠳᠣᠯᠳᠣ ᠪᠢᠴᠢᠬᠠᠨ᠎ᠠ᠃"
	壮文	Dan hab yungh youq gij dienheiq diuzgen mbouj dwg diegndat haenx ancienz sawjyungh.
	维文	غەيرى ئىسسىق بەلباغ ھاۋا كلىماتى شارائىتىدىلا ئىشلەتكىلى بولىدۇ

 For altitude 2000 meter and below:

安全说明和标记	汉文	仅适用于海拔2000m以下地区安全使用。
	藏文	《2000m ᠮᠡᠷ᠍ ᠬᠣᠯᠢᠭᠠᠨᠴᠠ ᠷᠡᠰᠢᠲᠤᠷᠢ ᠬᠣᠯᠢ ᠷᠢᠭᠠᠨ ᠬᠣᠯᠠ ᠶᠢᠨ ᠴᠢᠳᠬᠤᠭᠰᠠᠨ ᠪᠡᠶ ᠲᠡᠷᠢ ᠬᠣᠯᠢᠭ᠎ᠠ ᠷ᠍᠎᠍》᠂••
	蒙古文	"ᠬᠤ ᠰᠢᠴᠠᠪᠠᠢ ᠷ᠍ᠡᠰ ᠯᠠᠰ ᠠᠪᠤᠷ ᠴᠢᠳ ᠰᠢᠯᠢᠭᠡ2000ᠠᠨᠳ ᠬᠢ ᠰᠢ ᠬᠣᠯᠠ ᠶᠢᠨ ᠳᠡᠷᠡ ᠴᠢᠳᠬᠤᠭᠰᠠᠨ ᠪᠡᠶ ᠲᠡᠷᠢ ᠺᠣᠳᠣᠯᠳᠣ ᠪᠢᠴᠢᠬᠠᠨ᠎ᠠ᠃" "
	壮文	Dan hab yungh youq gij digih haijbaz 2000m doxroengz haenx ancienz sawjyungh.
	维文	دېڭىز يۈزىدىن 2000 مېتىر تۆۋەن رايونلاردىلا بىخەتەر ئىشلەتكىلى بولىدۇ

Warning for Class A:

声 明

此为 A 级产品，在生活环境中，该产品可能会造成无线电干扰。在这

种情况下，可能需要用户对其干扰采取切实可行的措施。

English translation of above statement

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

BSMI statement (Taiwan)

<div align="center">

警告使用者：

這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，

在這種情況下，使用者會被要求採取某些適當的對策。

</div>

English translation of above statement

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

Cautions and Danger Notices

Cautions

A caution calls your attention to a possible hazard that can damage equipment.

"Vorsicht" weist auf die Gefahr einer möglichen Beschädigung des Gerätes hin.

Une mise en garde attire votre attention sur un risque possible d'endommagement de l'équipement. Ci-dessous, vous trouverez les mises en garde utilisées dans ce manuel.

Un mensaje de precaución le advierte sobre un posible peligro que pueda dañar el equipo. Las siguientes son precauciones utilizadas en este manual.

> **CAUTION**
> Changes or modifications made to this device that are not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

VORSICHT	Falls dieses Gerät verändert oder modifiziert wird, ohne die ausdrückliche Genehmigung der für die Einhaltung der Anforderungen verantwortlichen Partei einzuholen, kann dem Benutzer der weitere Betrieb des Gerätes untersagt werden.
MISE EN GARDE	Les éventuelles modifications apportées à cet équipement sans avoir été expressément approuvées par la partie responsable d'en évaluer la conformité sont susceptibles d'annuler le droit de l'utilisateur à utiliser cet équipement.
PRECAUCIÓN	Si se realizan cambios o modificaciones en este dispositivo sin la autorización expresa de la parte responsable del cumplimiento de las normas, la licencia del usuario para operar este equipo puede quedar anulada.

> **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.

VORSICHT	Das Zerlegen von Netzteilen oder Lüftereinheiten macht die Garantie und die gesetzlichen Zertifizierungen ungültig. Die Netzteile und Lüftereinheiten enthalten keine Teile, die vom Benutzer gewartet werden können.
MISE EN GARDE	Le démontage d'une pièce du bloc d'alimentation ou du ventilateur annule la garantie et les certificats de conformité. Aucune pièce du bloc de l'alimentation ou du ventilateur ne peut être réparée par l'utilisateur.
PRECAUCIÓN	Si se desmonta cualquier pieza del módulo de fuente de alimentación y ventiladores, la garantía y las certificaciones normativas quedan anuladas. En el interior del módulo de fuente de alimentación y ventiladores no hay piezas que pueda reparar el usuario.

> **CAUTION**
> Make sure the airflow around the front, sides, and back of the device is not restricted.

VORSICHT	Stellen Sie sicher, dass an der Vorderseite, den Seiten und an der Rückseite der Luftstrom nicht behindert wird.
MISE EN GARDE	Vérifiez que rien ne restreint la circulation d'air devant, derrière et sur les côtés du dispositif et qu'elle peut se faire librement.
PRECAUCIÓN	Asegúrese de que el flujo de aire en las inmediaciones de las partes anterior, laterales y posterior del instrumento no esté restringido.

CAUTION

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

VORSICHT	Vergewissern Sie sich, dass die Luftstromrichtung des Netzteils der eingebauten Lüftereinheit entspricht. Die Netzteile und Lüftereinheiten sind eindeutig mit einem grünen Pfeil und dem Buchstaben "E" oder einem orangefarbenen Pfeil mit dem Buchstaben "I" gekennzeichnet.
MISE EN GARDE	Veillez à ce que le sens de circulation de l'air du bloc d'alimentation corresponde à celui du tiroir de ventilation installé. Les blocs d'alimentation et les tiroirs de ventilation sont étiquetés d'une flèche verte avec un "E " ou d'une flèche orange avec un " I ".
PRECAUCIÓN	Asegúrese de que la dirección del flujo de aire de la unidad de alimentación se corresponda con la de la bandeja del ventilador instalada. Los dispositivos de alimentación y las bandejas del ventilador están etiquetadas claramente con una flecha verde y una "E" o con una flecha naranja y una "I".

CAUTION

To protect the serial port from damage, keep the cover on the port when not in use.

VORSICHT	Um den seriellen Anschluss vor Beschädigungen zu schützen, sollten Sie die Abdeckung am Anschluss belassen, wenn er nicht verwendet wird.
MISE EN GARDE	Mettre le bouchon de protection sur le port série lorsqu'il ne sert pas pour éviter de l'endommager.
PRECAUCIÓN	Para evitar que se dañe el puerto serie, mantenga la cubierta colocada sobre el puerto cuando no lo utilice.

CAUTION

Never leave tools inside the chassis.

VORSICHT	Lassen Sie keine Werkzeuge im Chassis zurück.
MISE EN GARDE	Ne laissez jamais d'outils à l'intérieur du châssis.
PRECAUCIÓN	No deje nunca herramientas en el interior del chasis.

CAUTION

If you do not install a 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.

VORSICHT	Falls kein Modul oder Netzteil im Steckplatz installiert wird, muss die Steckplatztafel angebracht werden. Wenn ein Steckplatz nicht abgedeckt wird, läuft das System heiß.
MISE EN GARDE	Si vous n'installez pas de module ou de bloc d'alimentation dans un slot, vous devez laisser le panneau du slot en place. Si vous faites fonctionner le châssis avec un slot découvert, le système surchauffera.
PRECAUCIÓN	Si no instala un módulo o un fuente de alimentación en la ranura, deberá mantener el panel de ranuras en su lugar. Si pone en funcionamiento el chasis con una ranura descubierta, el sistema sufrirá sobrecalentamiento.

CAUTION
Use the screws specified in the procedure. Using longer screws can damage the device.

VORSICHT	Verwenden Sie die in der Anleitung aufgeführten Schrauben. Mit längeren Schrauben wird das Gerät möglicherweise beschädigt.
MISE EN GARDE	Utilisez les vis mentionnées dans les instructions. L'utilisation de vis plus longues peut endommager l'appareil.
PRECAUCIÓN	Utilice los tornillos especificados en el procedimiento. Si utiliza tornillos de mayor longitud, podría dañar el dispositivo.

CAUTION
Do not install the device in an environment where the operating ambient temperature might exceed 50°C (122°F).

VORSICHT	Das Gerät darf nicht in einer Umgebung mit einer Umgebungsbetriebstemperatur von über 50° C (122° F) installiert werden.
MISE EN GARDE	N'installez pas le dispositif dans un environnement où la température d'exploitation ambiante risque de dépasser 50° C (122° F).
PRECAUCIÓN	No instale el instrumento en un entorno en el que la temperatura ambiente de operación pueda exceder los 50° C (122° F).

CAUTION
Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the manufacturer's instructions.

VORSICHT	Es besteht Explosionsgefahr, wenn ein unzulässiger Batterietyp eingesetzt wird. Verbrauchte Batterien sind entsprechend den geltenden Vorschriften zu entsorgen.
MISE EN GARDE	Risque d'explosion en cas de remplacement de la pile par un modèle incorrect. Débarrassezvous des piles usagées conformément aux instructions.
PRECAUCIÓN	Riesgo de explosión si se sustituye la batería por una de tipo incorrecto. Deshágase de las baterías usadas de acuerdo con las instrucciones.

CAUTION
The device must be turned off and disconnected from the fabric during this procedure.

VORSICHT	Bei diesem Verfahren muss das Gerät ausgeschaltet und von der Fabric getrennt sein.
MISE EN GARDE	Au cours de cette procédure, l'appareil doit être éteint et déconnecté du réseau.
PRECAUCIÓN	El dispositivo debe estar apagado y desconectado del fabric durante este procedimiento.

CAUTION
Power supplies are hot-swappable. However, they should be inserted or removed without a power cord being connected to a power source to avoid damage.

VORSICHT	Netzteile sind hot-swap-fähig. Sie sollten jedoch eingesetzt oder entfernt werden, ohne dass ein Stromkabel mit einer Stromquelle verbunden ist, um Beschädigungen zu vermeiden.
MISE EN GARDE	Les unités d'alimentation sont permutables à chaud. Cependant, et pour éviter tout dommage, elles doivent être insérées ou retirées sans cordon d'alimentation relié à une source d'alimentation.
PRECAUCIÓN	Los proveedores de energía son deslizables por calor. Sin embargo deben insertarse o extraerse sin ningún cable de alimentación conectado a la fuente de alimentación para evitar daños.

CAUTION
All devices with DC power supplies are intended for installation in restricted access areas only. A restricted access area is where access can be gained only by service personnel through the use of a special tool, lock and key, or other means of security, and is controlled by the authority responsible for the location.

VORSICHT	Alle Geräte mit DC-Netzteil sind nur für die Installation in Bereichen mit beschränktem Zugang gedacht. Ein Bereich mit beschränktem Zugang ist ein Bereich, zu dem nur Wartungspersonal mit Spezialwerkzeug, Schlüssel oder anderen Sicherheitsvorrichtungen Zugang hat. Dieser Zugang wird von für den Bereich zuständigen Personen überwacht.
MISE EN GARDE	Tous les dispositifs avec bloc d'alimentation C.C. sont conçus pour l'installation dans des zones à accès réglementé uniquement. Une zone à accès réglementé est une zone dont l'accès n'est possible qu'au personnel de service utilisant un verrou, une clé ou un outil spécial, ou d'autres moyens de sécurité, et qui est contrôlée par les autorités responsables du site.
PRECAUCIÓN	Todos los instrumentos con suministros de corriente continua han sido diseñados únicamente para instalación en áreas restringidas. Se entiende como área de acceso restringido un lugar al que solo puede acceder personal de servicio mediante el uso de una herramienta especial, llave y cerrojo u otro medio de seguridad similar, y que esté controlado por la autoridad responsable de esa ubicación.

CAUTION
Static electricity can damage the chassis and other electronic devices. To avoid damage, keep static-sensitive devices in their static-protective packages until you are ready to install them.

VORSICHT	Statische Elektrizität kann das System und andere elektronische Geräte beschädigen. Um Schäden zu vermeiden, entnehmen Sie elektrostatisch empfindliche Geräte erst aus deren antistatischer Schutzhülle, wenn Sie bereit für den Einbau sind.
MISE EN GARDE	L'électricité statique peut endommager le châssis et les autres appareils électroniques. Pour éviter tout dommage, conservez les appareils sensibles à l'électricité statique dans leur emballage protecteur tant qu'ils n'ont pas été installés.
PRECAUCIÓN	La electricidad estática puede dañar el chasis y otros dispositivos electrónicos. A fin de impedir que se produzcan daños, conserve los dispositivos susceptibles de dañarse con la electricidad estática dentro de los paquetes protectores hasta que esté listo para instalarlos.

CAUTION
Use a separate branch circuit for each power cord, which provides redundancy in case one of the circuits fails.

VORSICHT	Es empfiehlt sich die Installation eines separaten Stromkreiszweiges für jede Elektroschnur als Redundanz im Fall des Ausfalls eines Stromkreises.
MISE EN GARDE	Utilisez un circuit de dérivation différent pour chaque cordon d'alimentation ainsi, il y aura un circuit redondant en cas de panne d'un des circuits.
PRECAUCIÓN	Use un circuito derivado separado para cada cordón de alimentación, con lo que se proporcionará redundancia en caso de que uno de los circuitos falle.

CAUTION

To avoid high voltage shock, do not open the device while the power is on.

VORSICHT	Das eingeschaltete Gerät darf nicht geöffnet werden, da andernfalls das Risiko eines Stromschlags mit Hochspannung besteht.
MISE EN GARDE	Afin d'éviter tout choc électrique, n'ouvrez pas l'appareil lorsqu'il est sous tension.
PRECAUCIÓN	Para evitar una descarga de alto voltaje, no abra el dispositivo mientras esté encendido.

CAUTION

Ensure that the device does not overload the power circuits, wiring, and over-current protection. To determine the possibility of overloading the supply circuits, add the ampere (amp) ratings of all devices installed on the same circuit as the device. Compare this total with the rating limit for the circuit. The maximum ampere ratings are usually printed on the devices near the input power connectors.

VORSICHT	Stromkreise, Verdrahtung und Überlastschutz dürfen nicht durch das Gerät überbelastet werden. Addieren Sie die Nennstromleistung (in Ampere) aller Geräte, die am selben Stromkreis wie das Gerät installiert sind. Somit können Sie feststellen, ob die Gefahr einer Überbelastung der Versorgungsstromkreise vorliegt. Vergleichen Sie diese Summe mit der Nennstromgrenze des Stromkreises. Die Höchstnennströme (in Ampere) stehen normalerweise auf der Geräterückseite neben den Eingangsstromanschlüssen.
MISE EN GARDE	Assurez-vous que le dispositif ne risque pas de surcharger les circuits d'alimentation, le câblage et la protection de surintensité. Pour déterminer le risque de surcharge des circuits d'alimentation, additionnez l'intensité nominale (ampères) de tous les dispositifs installés sur le même circuit que le dispositif en question. Comparez alors ce total avec la limite de charge du circuit. L'intensité nominale maximum en ampères est généralement imprimée sur chaque dispositif près des connecteurs d'entrée d'alimentation.
PRECAUCIÓN	Verifique que el instrumento no sobrecargue los circuitos de corriente, el cableado y la protección para sobrecargas. Para determinar la posibilidad de sobrecarga en los circuitos de suministros, añada las capacidades nominales de corriente (amp) de todos los instrumentos instalados en el mismo circuito que el instrumento. Compare esta suma con el límite nominal para el circuito. Las capacidades nominales de corriente máximas están generalmente impresas en los instrumentos, cerca de los conectores de corriente de entrada.

CAUTION

Before plugging a cable to any port, be sure to discharge any static charge stored on the cable by touching the electrical contacts to ground surface.

VORSICHT	Bevor Sie ein Kabel in einen Anschluss einstecken, entladen Sie jegliche im Kabel vorhandene elektrische Spannung, indem Sie mit den elektrischen Kontakten eine geerdete Oberfläche berühren.
MISE EN GARDE	Avant de brancher un câble à un port, assurez-vous de décharger la tension du câble en reliant les contacts électriques à la terre.
PRECAUCIÓN	Antes de conectar un cable en cualquier puerto, asegúrese de descargar la tensión acumulada en el cable tocando la superficie de conexión a tierra con los contactos eléctricos.

CAUTION

For the NEBS-compliant installation of an Extreme device with AC or DC systems, use a ground wire of at least 6 AWG. The ground wire should have an agency-approved crimped connector (provided with the device) attached to one end, with the other end attached to building ground. The connector must be crimped with the proper tool, allowing it to be connected to both ground screws on the enclosure. Before crimping the ground wire into the provided ground lug, ensure that the bare copper wire has been cleaned and antioxidant is applied to the bare wire. In addition, anti-rotation devices or lock washers must be used with all screw connections for the grounding wire.

VORSICHT	Zur NEBS-konformen Installation eines Extreme Geräts mit Gleich- oder Wechselstrom betriebenen muss zur Erdung ein Kabel der Stärke von mindestens 6 AWG verwendet werden. Das Erdungskabel muss an einem Ende mit einem zugelassenen Crimp-Anschluss (im Lieferumfang des Geräts) versehen sein und mit dem anderen Ende an die Gebäude-Erde angeschlossen werden. Der Anschluss muss mit einem geeigneten Werkzeug gecrimpt werden, damit er mit den beiden Erdungsschrauben auf dem Gehäuse verbunden werden kann. Bevor das Erdungskabel an die Erdungsöse angeschlossen wird, muss der blanke Kupferdraht gereinigt und mit einem Antioxidationsmittel behandelt werden. Außerdem müssen bei allen Schraubverbindungen des Erdungskabels Drehsicherungen oder Sicherungsscheiben verwendet werden.
MISE EN GARDE	Pour garantir la conformité de l'installation d'un dispositif Extreme avec système alimentation CC ou CA à la norme NEBS, utilisez un câble de mise à la terre d'au moins 6 AWG. Le câble de mise à la terre doit être muni d'une cosse sertie homologuée (fournie avec l'appareil) à une extrémité, l'autre extrémité étant reliée à la terre. La cosse doit être sertie avec l'outil adéquat, ce qui permet de la relier aux deux vis de mise à la terre du boîtier. Avant de sertir le câble de mise à la terre dans la cosse fournie, assurez-vous que le fil de cuivre dénudé a été nettoyé et qu'un antioxydant a été appliqué. De plus, des dispositifs antirotation ou des rondelles de frein doivent être utilisés avec tous les raccords vissés au câble de mise à la terre.
PRECAUCIÓN	Para que la instalación de un dispositivo con sistemas de CA o CC sea conforme a la certificación NEBS, utilice un cable de conexión a tierra de calibre AWG 6 como mínimo. El cable de conexión a tierra debe disponer de un conector engarzado homologado (suministrado con el dispositivo) unido a un extremo de modo que el otro extremo se conecte a la toma de tierra. El conector se debe engarzar con la herramienta adecuada de forma que se pueda conectar a los dos tornillos de conexión a tierra del compartimento. Antes de engarzar el cable de conexión a tierra a la patilla de conexión a tierra proporcionada, asegúrese de limpiar y aplicar antioxidante al alambre pelado de cobre. Además, deben emplearse los seguros contra giro o las arandelas de sujeción en todas las uniones atornilladas del cable de toma de tierra.

CAUTION
Make sure the rack housing the device is adequately secured to prevent it from becoming unstable or falling over.

VORSICHT	Stellen Sie sicher, dass das Gestell oder der Schrank für die Unterbringung des Geräts auf angemessene Weise gesichert ist, so dass das Gestell oder der Schrank nicht wackeln oder umfallen kann.
MISE EN GARDE	Vérifiez que le bâti ou le support abritant le dispositif est bien fixé afin qu'il ne devienne pas instable ou qu'il ne risque pas de tomber.
PRECAUCIÓN	Verifique que el bastidor o armario que alberga el instrumento está asegurado correctamente para evitar que pueda hacerse inestable o que caiga.

CAUTION
To prevent damage to the chassis and components, never attempt to lift the chassis using the fan or power supply handles. These handles were not designed to support the weight of the chassis.

VORSICHT	Alle Geräte mit Wechselstromquellen sind nur zur Installation in Sperrbereichen bestimmt. Ein Sperrbereich ist ein Ort, zu dem nur Wartungspersonal mit einem Spezialwerkzeug, Schloss und Schlüssel oder einer anderen Schutzvorrichtung Zugang hat.
MISE EN GARDE	Pour éviter d'endommager le châssis et les composants, ne jamais tenter de soulever le châssis par les poignées du ventilateur ou de l'alimentation. Ces poignées n'ont pas été conçues pour supporter le poids du châssis.
PRECAUCIÓN	Para prevenir daños al chasis y a los componentes, nunca intente levantar el chasis usando las asas de la fuente de alimentación o del ventilador. Tales asas no han sido diseñadas para soportar el peso del chasis.

Danger notices

A danger notification calls your attention to a possible hazard that can cause injury or death. The following are the warnings used in this manual.

"Gefahr" weist auf eine mögliche Gefährdung hin, die zu Verletzungen oder Tod führen können. Sie finden die folgenden Warnhinweise in diesem Handbuch.

Un danger attire votre attention sur un risque possible de blessure ou de décès. Ci-dessous, vous trouverez les avertissements utilisés dans ce manuel.

Una señal de peligro le llama la atención sobre cualquier posible peligro que pueda ocasionar daños personales o la muerte. A continuación se dan las advertencias utilizadas en este manual.

DANGER
The procedures in this manual are for qualified service personnel.

GEFAHR	Die Verfahren in diesem Handbuch sind nur für qualifiziertes Wartungspersonal gedacht.
DANGER	Les procédures décrites dans ce manuel doivent être effectuées par le personnel de service qualifié uniquement.
PELIGRO	Los procedimientos de este manual se han hecho para personal de servicio cualificado.

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

GEFAHR	Stellen Sie sicher, dass die Stromkreise ordnungsgemäß geerdet sind. Benutzen Sie dann das mit dem Gerät gelieferte Stromkabel, um es an die Srromquelle anzuschließen.
DANGER	Vérifiez que les circuits de sources d'alimentation sont bien mis à la terre, puis utilisez lecordon d'alimentation fourni avec le dispositif pour le connecter à la source d'alimentation.
PELIGRO	Verifique que circuitos de la fuente de corriente están conectados a tierra correctamente; luego use el cordón de potencia suministrado con el instrumento para conectarlo a la fuente de corriente.

DANGER
Before beginning the installation, see the precautions in "Power precautions."

GEFAHR	Vor der Installation siehe Vorsichtsmaßnahmen unter "Power Precautions" (Vorsichtsmaßnahmen in Bezug auf elektrische Ablagen).
DANGER	Avant de commencer l'installation, consultez les précautions décrites dans "Power Precautions" (Précautions quant à l'alimentation).
PELIGRO	Antes de comenzar la instalación, consulte las precauciones en la sección "Power Precautions" (Precauciones sobre corriente).

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

GEFAHR	Die Finger dürfen nicht versehentlich in das Ventilatorblech gesteckt werden, wenn dieses vom Gehäuse abgenommen wird. Der Ventilator kann sich unter Umständen noch mit hoher Geschwindigkeit drehen.
DANGER	Faites attention de ne pas accidentellement insérer vos doigts dans le boîtier du ventilateur lorsque vous l'enlevez du châssis. Il est possible que le ventilateur tourne encore à grande vitesse.
PELIGRO	Procure no insertar los dedos accidentalmente en la bandeja del ventilador cuando esté desmontando el chasis. El ventilador podría estar girando a gran velocidad.

DANGER
For safety reasons, the ESD wrist strap should contain a series 1 megohm resistor.

GEFAHR	Aus Sicherheitsgründen sollte ein EGB-Armband zum Schutz von elektronischen gefährdeten Bauelementen mit einem 1 Megaohm-Reihenwiderstand ausgestattet sein.
DANGER	Pour des raisons de sécurité, la dragonne ESD doit contenir une résistance de série 1 méga ohm.
PELIGRO	Por razones de seguridad, la correa de muñeca ESD deberá contener un resistor en serie de 1 mega ohmio.

DANGER
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.

GEFAHR	Falls für die Installation ein anderes Stromkabel erforderlich ist (wenn das mit dem Gerät gelieferte Kabel nicht passt), müssen Sie sicherstellen, dass Sie ein Stromkabel mit dem Siegel einer Sicherheitsbehörde verwenden, die für die Zertifizierung von Stromkabeln in Ihrem Land zuständig ist. Das Siegel ist Ihre Garantie, dass das Stromkabel sicher mit Ihrem Gerät verwendet werden kann.
DANGER	Si l'installation nécessite un cordon d'alimentation autre que celui fourni avec le dispositif, assurez-vous d'utiliser un cordon d'alimentation portant la marque de l'organisation responsable de la sécurité qui définit les normes et régulations pour les cordons d'alimentation dans votre pays. Cette marque vous assure que vous pouvez utiliser le cordon d'alimentation avec le dispositif en toute sécurité.
PELIGRO	Si la instalación requiere un cordón de corriente distinto al que se ha suministrado con el instrumento, verifique que usa un cordón de corriente que venga con la marca de la agencia de seguridad que defina las regulaciones para cordones de corriente en su país. Esta marca será su garantía de que el cordón de corriente puede ser utilizado con seguridad con el instrumento.

DANGER
Disconnect the power cord from all power sources to completely remove power from the device.

GEFAHR	Ziehen Sie das Stromkabel aus allen Stromquellen, um sicherzustellen, dass dem Gerät kein Strom zugeführt wird.
DANGER	Débranchez le cordon d'alimentation de toutes les sources d'alimentation pour couper complètement l'alimentation du dispositif.
PELIGRO	Para desconectar completamente la corriente del instrumento, desconecte el cordón de corriente de todas las fuentes de corriente.

DANGER
This device might have more than one power cord. To reduce the risk of electric shock, disconnect all power cords before servicing.

GEFAHR	Dieses System ist möglicherweise mit mehr als einem Netzkabel ausgestattet. Trennen Sie stets die Verbindung aller Netzkabel, bevor Sie Wartungsarbeiten durchführen, um dieGefahr eines Stromschlags auszuschließen.
DANGER	Ce commutateur peut comporter plusieurs cordons d'alimentation. Pour réduire les risques de choc électrique, déconnectez tous les cordons d'alimentation avant d'effectuerl'entretien de l'appareil.
PELIGRO	Este conmutador podría tener más de un cable de alimentación. Para reducir el riesgo de sufrir una descarga eléctrica, desconecte todos los cables de alimentación antes de proceder con la reparación.

DANGER
Use safe lifting practices when moving the product.

GEFAHR	Beim Bewegen des Produktes ist auf eine sichere Hubtechnik zu achten.
DANGER	Utiliser des techniques de levage sûres pour déplacer le produit.
PELIGRO	Tenga mucho cuidado al levantar el producto para moverlo

DANGER
Mount the devices you install in a rack as low as possible. Place the heaviest device at the bottom and progressively place lighter devices above.

GEFAHR	Montieren Sie die Geräte im Gestell so tief wie möglich. Platzieren Sie das schwerste Gerät ganz unten, während leichtere Geräte je nach Gewicht (je schwerer desto tiefer) darüber untergebracht werden.
DANGER	Montez les dispositifs que vous installez dans un bâti aussi bas que possible. Placez le dispositif le plus lourd en bas et le plus léger en haut, en plaçant tous les dispositifs progressivement de bas en haut du plus lourd au plus léger.
PELIGRO	Monte los instrumentos que instale en un bastidor lo más bajos posible. Ponga el instrumento más pesado en la parte inferior y los instrumentos progresivamente más livianos más arriba.

DANGER
All fiber-optic interfaces use Class 1 lasers.

GEFAHR	Alle Glasfaser-Schnittstellen verwenden Laser der Klasse 1.
DANGER	Toutes les interfaces en fibres optiques utilisent des lasers de classe 1.
PELIGRO	Todas las interfaces de fibra óptica utilizan láser de clase 1.

DANGER
Laser radiation. Do not view directly with optical instruments. Class 1M laser products.

GEFAHR	Laserstrahlung! Schauen Sie nicht direkt mit optischen Instrumenten in den Laserstrahl herein. Klasse 1M Laserprodukte.
DANGER	Rayonnement de laser. Ne regardez pas directement avec les instruments optiques. Produits de laser de la classe 1M.
PELIGRO	Radiacion de Laser. No vea directamente con Instrumentos Opticos. Clase 1M de Productos de Laser.
危險	雷射輻射，勿以光學儀器直視等級１Ｍ雷射產品。
警告	レーザ放射 光学器具で直接ビームを見ないこと クラス１Ｍレーザ製品

DANGER
Use only optical transceivers that are qualified by Extreme Networks, Inc. and comply with the FDA Class 1 radiation performance requirements defined in 21 CFR Subchapter I, and with IEC 825 and EN60825. Optical products that do not comply with these standards might emit light that is hazardous to the eyes.

GEFAHR	Verwenden Sie nur optische Transceiver, die von Extreme Networks zugelassen sind und die die Anforderungen gemäß FDA Class 1 Radiation Performance Standards in 21 CFR, Unterkapitel I, sowie IEC 825 und EN60825 erfüllen. Optische Produkte, die diese Normen nicht erfüllen, können Strahlen aussenden, die für das menschliche Auge gefährlich sind.
DANGER	Utilisez uniquement des émetteurs-récepteurs optiques certifiés par Extreme Networks, Inc. et conformes aux exigences sur la puissance de rayonnement de catégorie 1 de la FDA définies au sous-chapitre 21 CFR I et à les normes IEC 825 et EN60825. Les produits optiques non-conformes à ces normes sont susceptibles d'émettre une lumière dangereuse pour les yeux.
PELIGRO	Utilice sólo transceptores ópticos aprobados por Extreme Networks, Inc. y que cumplan con las normas IEC 825 y EN60825, y con los estándares de rendimiento Clase 1 de FDA definidos en el subcapítulo I de 21 CFR. Los productos ópticos que no cumplan con estos estándares pueden emitir luz dañina para los ojos.