



# Cisco Nexus 9364C-H1 NX-OS Mode Switch Hardware Installation Guide

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Overview 1

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# CHAPTER 1

## Overview

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## Overview

The Cisco Nexus 9364C-H1 switch (N9K-C9364C-H1) is a 2-rack unit (RU), fixed-port switch designed for Top-of-Rack deployment in data centers. This switch has the following ports:

- Port 1-64 support 25G speed by using CVR-QSFP28-SFP25G, and support 10G speed by using CVR-QSFP-SFP10G
  - Ports 1 to 48 support 40G-/100-Gigabit speeds and QSFP-to-SFP adapters for 10-Gigabit connections.
  - Ports 49 to 64 support 40-/100-Gigabit speeds and are colored green to indicate hardware support for MACsec encryption. (see the following figure to see how these 64 ports are numbered)

**Figure 1: Numbering of the 64 40/100-Gigabit Ports on the Cisco Nexus 9364C-H1 Switch**

1	5	9	13	17	21	25	29	33	37	41	45	49	53	57	61
2	6	10	14	18	22	26	30	34	38	42	46	50	54	58	62
3	7	11	15	19	23	27	31	35	39	43	47	51	55	59	63
4	8	12	16	20	24	28	32	36	40	44	48	52	56	60	64



40-/100-Gigabit ports

40-/100-Gigabit ports supporting MACsec

- 2 1-/10-Gigabit SFP+ interface ports (Ports 65 - 66)
- 1 console port
- 1 management ports (one RJ-45 port or one SFP port)
- 1 USB port

This switch includes the following user-replaceable components:

- Fan modules (four) with the following airflow choices:
  - Port-side exhaust fan module with blue coloring (NXASFAN-160CFM-2PE)
  - Port-side intake fan module with burgundy coloring (NXASFAN-160CFM-2PI)



**Note** *Table 1: Fan Speeds for this Switch*

	<b>Port-Side Intake Fan Speed %</b>	<b>Port-Side Exhaust Fan Speed %</b>
Typical/Minimum	45%	45%
Maximum	80%	80%



- Note**
- When more than one Fan module (two rotors) fails, major alarm is raised and a graceful shut down is performed within two minutes, unless the Fan module is restored.
  - The switch functions normally when only one fan tray fails. If more than one fan tray fails, the switch issues a warning and powers down within two minutes.

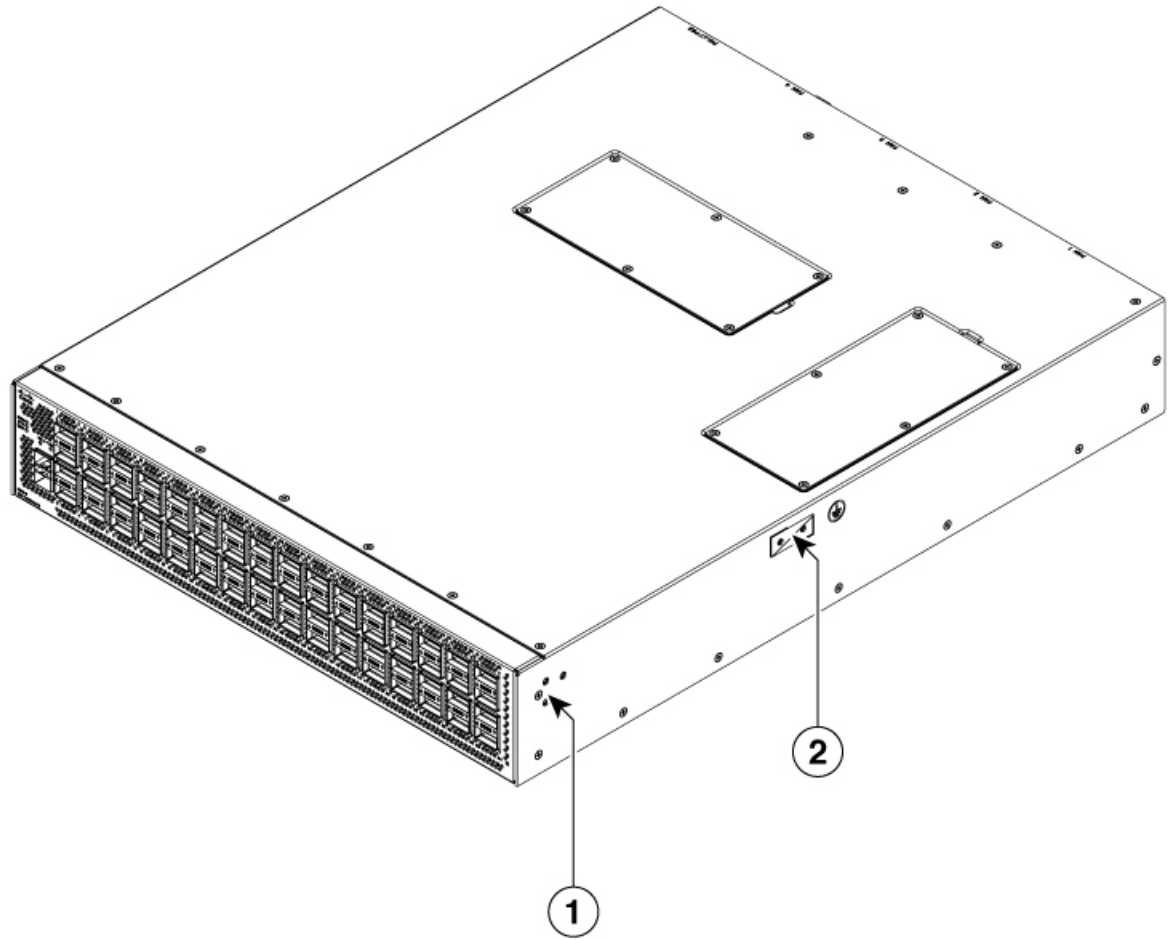
- Power supply modules (two—one for operations and one for redundancy [1+1]) with the following choices:
  - 1400-W port-side exhaust AC power supply with blue coloring (NXA-PAC-1400W-PE)
  - 1400-W port-side intake AC power supply with burgundy coloring (NXA-PAC-1400W-PI)
  - 2000-W- HVAC/HVDC DC airflow power intake with burgundy coloring (NXA-PHV-2KW-PI)
  - 2000-W port-side exhaust DC power supply with blue coloring (NXA-PDC-2KW-PE)
  - 2000-W port-side intake DC power supply with burgundy coloring (NXA-PDC-2KW-PI)

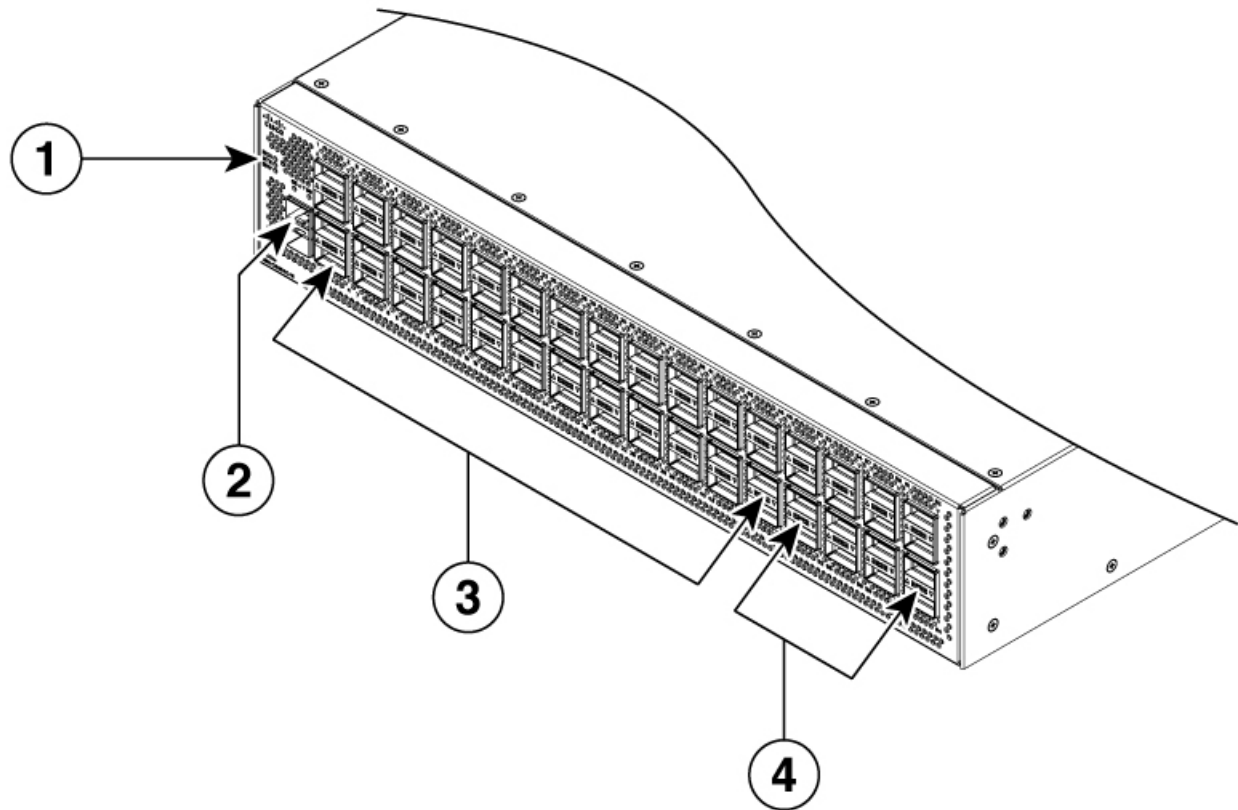


- Note**
- Both the power supplies should be the same type. A mix of AC, DC, or HVAC/HVDC power supplies in the same switch are supported for hot swapping purposes within a time limit of 15 minutes.
  - All the fan modules and power supplies must use the same airflow direction.

The following figure shows the switch features on the port side of the chassis.



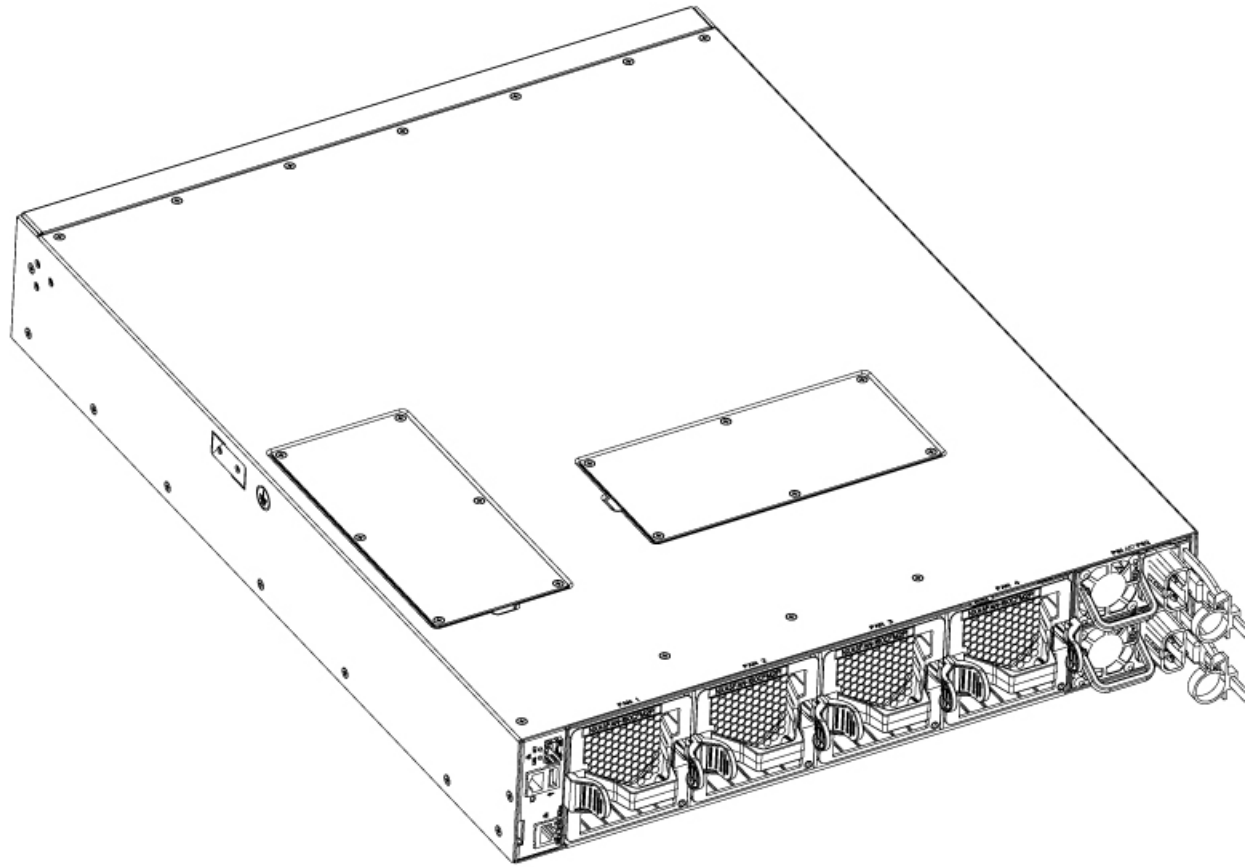


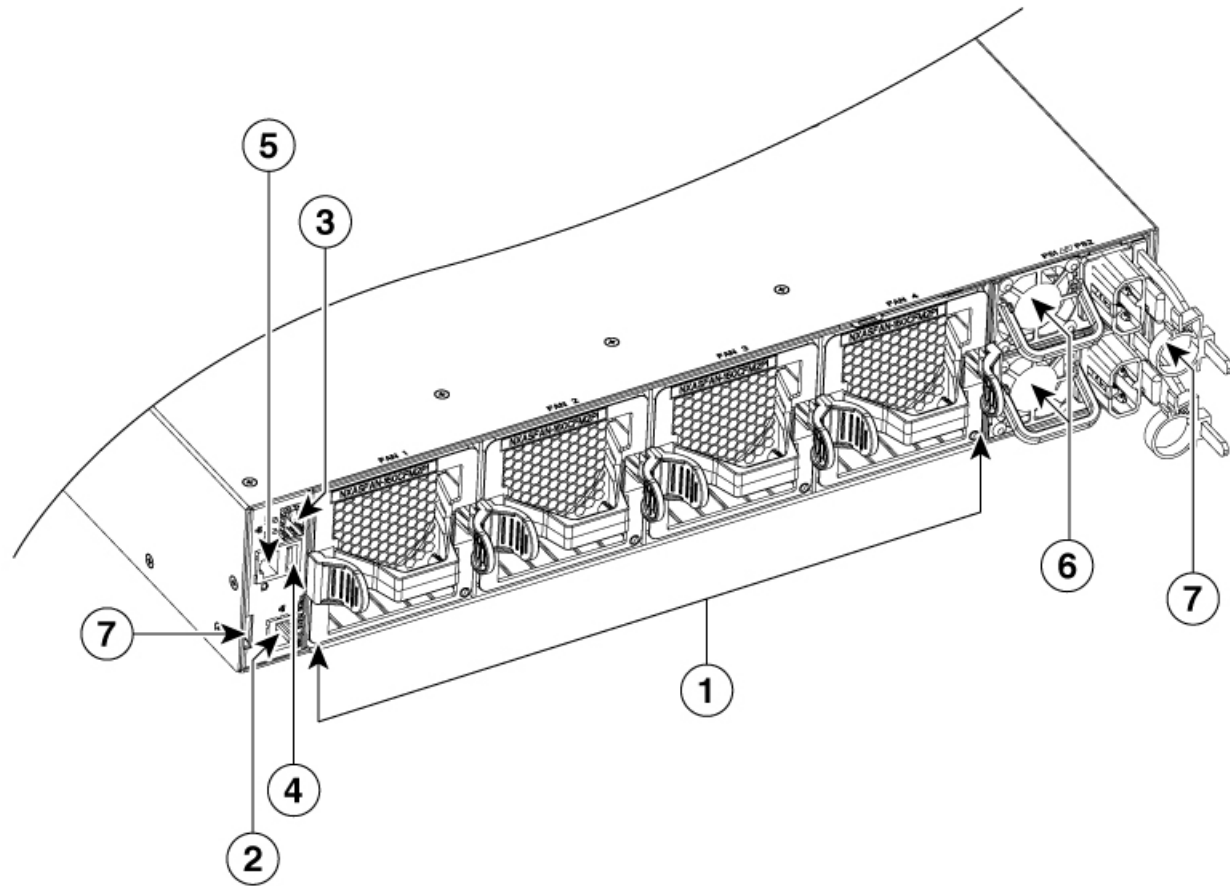


1	Beacon (BCN), Status (STS), and Environment (ENV) LEDs	5	Screw holes for front mounting brackets (both left & right sides)
2	1-/10-Gigabit SFP+ ports (2)	6	Grounding pad
3	40-/100-Gigabit QSFP28 ports (ports 1 to 48 in 4 rows of 12 ports)		
4	Green colored 100-Gigabit QSFP28 ports supporting MACsec (when software support is available) (ports 49 to 64 in 4 rows of 4 ports)		

To determine which transceivers, adapters, and cables are supported by this switch, see the [Cisco Transceiver Modules Compatibility Information](#) document.

The following figure shows the switch features on the power supply side of the chassis.





1	Fan modules (4) with slots numbered from 1 (left) to 4 (right)	5	Console port (1)
2	Management port (1—RJ-45 copper port)	6	Power supply modules (1 or 2) (AC power supplies shown) with slots numbered 1 (top) and 2 (bottom)
3	Management port (1—SFP optical port)	7	Notch on both sides of the chassis at the end for rack mount supporting.
4	USB port (1)		

Depending on whether you plan to position the ports in a hot or cold aisle, you can order the fan and power supply modules with port-side intake or port-side exhaust airflow. For port-side intake airflow, the fan and AC power supply modules have burgundy coloring. For port-side exhaust airflow, the fan and AC power supplies have blue coloring. You can also order the 2000-W HVAC/HVDC power supply which can either be a port-side exhaust having blue coloring or a port-side intake having red coloring.

The fan and power supply modules are field replaceable and you can replace one fan module or one power supply module during operations so long as the other modules are installed and operating. If you have only one power supply installed, you can install the replacement power supply in the open slot before removing the original power supply.



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**Note** All of the fan and power supply modules must have the same direction of airflow. Otherwise, the switch can overheat and shut down.

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**Caution** If the switch has port-side intake airflow (burgundy coloring for fan modules), you must locate the ports in the cold aisle. If the switch has port-side exhaust airflow (blue coloring for fan modules), you must locate the ports in the hot aisle. If you locate the air intake in a hot aisle, the switch can overheat and shut down.

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## CHAPTER 2

# Preparing the Site

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- [Temperature Requirements, on page 9](#)
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- [Minimizing Electromagnetic and Radio Frequency Interference, on page 10](#)
- [Shock and Vibration Requirements, on page 11](#)
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- [Rack and Cabinet Requirements, on page 13](#)

## Temperature Requirements

The switch requires an operating temperature of 32 to 104 degrees Fahrenheit (0 to 40 degrees Celsius). If the switch is not operating, the temperature must be between –40 to 158 degrees Fahrenheit (–40 to 70 degrees Celsius).

## Humidity Requirements

Buildings in which the climate is controlled by air-conditioning in the warmer months and by heat during the colder months usually maintain an acceptable level of humidity for the switch equipment. However, if the switch is located in an unusually humid location, use a dehumidifier to maintain the humidity within an acceptable range.

## Altitude Requirements

For every 1000 feet (300 meters) elevation, the maximum ambient temperature is reduced by one degrees Celsius.

## Dust and Particulate Requirements

Exhaust fans cool power supplies and system fans cool switches by drawing in air and exhausting air out through various openings in the chassis. However, fans also ingest dust and other particles, causing contaminant buildup in the switch and increased internal chassis temperature. Dust and particles can act as insulators and interfere with the mechanical components in the switch. A clean operating environment can greatly reduce the negative effects of dust and other particles.

In addition to keeping your environment free of dust and particles, follow these precautions to avoid contamination of your switch:

- Do not permit smoking near the switch.
- Do not permit food or drink near the switch.

## Minimizing Electromagnetic and Radio Frequency Interference

Electromagnetic interference (EMI) and radio frequency interference (RFI) from the switch can adversely affect other devices, such as radio and television (TV) receivers. Radio frequencies that emanate from the switch can also interfere with cordless and low-power telephones. Conversely, RFI from high-power telephones can cause spurious characters to appear on the switch monitor.

RFI is defined as any EMI with a frequency above 10 kHz. This type of interference can travel from the switch to other devices through the power cable and power source or through the air as transmitted radio waves. The Federal Communications Commission (FCC) publishes specific regulations to limit the amount of EMI and RFI that are emitted by computing equipment. Each switch meets these FCC regulations.

To reduce the possibility of EMI and RFI, follow these guidelines:

- Cover all open expansion slots with a blank filler plate.
- Always use shielded cables with metal connector shells for attaching peripherals to the switch.

When wires are run for any significant distance in an electromagnetic field, interference can occur to the signals on the wires with the following implications:

- Bad wiring can result in radio interference emanating from the plant wiring.
- Strong EMI, especially when it is caused by lightning or radio transmitters, can destroy the signal drivers and receivers in the chassis and even create an electrical hazard by conducting power surges through lines into equipment.



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**Note** To predict and prevent strong EMI, you need to consult experts in radio frequency interference (RFI).

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The wiring is unlikely to emit radio interference if you use a twisted-pair cable with a good distribution of grounding conductors. If you exceed the recommended distances, use a high-quality twisted-pair cable with one ground conductor for each data signal when applicable.



**Caution**

If the wires exceed the recommended distances, or if wires pass between buildings, give special consideration to the effect of a lightning strike in your vicinity. The electromagnetic pulse that is caused by lightning or other high-energy phenomena can easily couple enough energy into unshielded conductors to destroy electronic switches. You will want to consult experts in electrical surge suppression and shielding if you had similar problems in the past.

## Shock and Vibration Requirements

The switch has been shock- and vibration-tested for operating ranges, handling, and earthquake standards.

## Grounding Requirements

The switch is sensitive to variations in voltage that is supplied by the power sources. Overvoltage, undervoltage, and transients (or spikes) can erase data from memory or cause components to fail. To protect against these types of problems, ensure that there is an earth-ground connection for the switch. You can connect the grounding pad on the switch either directly to the earth-ground connection or to a fully bonded and grounded rack.

When chassis is properly installed in a grounded rack, the switch is grounded because it has a metal-to-metal (no paint, stain, dirt, or anything else on it) connection to the rack. Alternatively, you can ground the chassis by using a customer-supplied grounding cable that meets your local and national installation requirements. For U.S. installations, we recommend 6-AWG wire. Connect your grounding cable to the chassis with a grounding lug (provided in the switch accessory kit) and to the facility ground.

**Note**

You automatically ground AC power supplies when you connect them to AC power sources. For DC power supplies, you must connect a grounding wire when wiring the power supply to the DC power source.

**Note**

An electrical conducting path shall exist between the product chassis and the metal surface of the enclosure or rack in which it is mounted or to a grounding conductor. Electrical continuity shall be provided by using thread-forming type mounting screws that remove any paint or non-conductive coatings and establish a metal-to-metal contact. Any paint or other non-conductive coatings shall be removed on the surfaces between the mounting hardware and the enclosure or rack. The surfaces shall be cleaned and an antioxidant applied before installation.

## Planning for Power Requirements

The switch includes two power supplies (1-to-1 redundancy with current sharing) in one of the following combinations:

- Two 1400-W AC power supplies
- Two 2000-W DC power supplies

- One 2000-W HVDC power supplies



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**Note** For 1+1 redundancy, you must use two power sources and connect each power supply to a separate power source.

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The power supplies are rated to output up to 1400 W (AC power supplies), or up to 2000 W (DC power supplies), but the switch requires less than those amounts of power from the power supply. To operate the switch, you must provision enough power from the power source to cover the requirements of both the switch and a power supply. Typically, this switch and a power supply require 605 W of power input from the power source, but you must provision as much as 1100 W power input from the power source to cover peak demand.



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**Note** Some of the power supply modules have rating capabilities that exceed the switch requirements. When calculating your power requirements, use the switch requirements to determine the amount of power that is required for the power supplies.

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To minimize the possibility of circuit failure, make sure that each power-source circuit that is used by the switch is dedicated to the switch.



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**Warning** **Statement 1033**—Safety Extra-Low Voltage (SELV)—IEC 60950/ES1—IEC 62368 DC Power Supply  
To reduce the risk of electric shock, connect the unit to a DC power source that complies with the SELV requirements in IEC 60950-based safety standards or ES1 and PS1 requirements in IEC 62368-based safety standards or to a Class 2 power supply.

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**Note** We recommend 8-AWG wire for DC installations in the U.S.

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## Airflow Requirements

The switch is positioned with its ports in either the front or the rear of the rack depending on your cabling and maintenance requirements.

To identify the airflow options for your switch, see the user-replaceable components in the *Overview* section of this document.

You must have fan and power supply modules that move the coolant air from the cold aisle to the hot aisle in one of the following ways:

- Port-side exhaust airflow—Cool air enters the chassis through the fan and power supply modules in the cold aisle and exhausts through the port end of the chassis in the hot aisle.
- Port-side intake airflow—Cool air enters the chassis through the port end in the cold aisle and exhausts through the fan and power supply modules in the hot aisle.
- Single-direction airflow—The direction of the installed fan modules determines the airflow.

You can identify the airflow direction of each fan and power supply module by its coloring as follows:

- Blue coloring indicates port-side exhaust airflow.
- Red coloring indicates port-side intake airflow.
- Red coloring on DC power supplies indicates port-side intake airflow.



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**Note** To prevent the switch from overheating and shutting down, you must position the air intake for the switch in a cold aisle. The fan and power supply modules must have the same direction of airflow. If you must change the airflow direction for the switch, you must shutdown the switch before changing the modules.

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## Rack and Cabinet Requirements

You can install the following types of racks or cabinets for your switch:

- Standard perforated cabinets
- Solid-walled cabinets with a roof fan tray (bottom-to-top cooling)
- Standard open four-post Telco racks

Work with your cabinet vendors to determine which of their cabinets meet the following requirements or see the Cisco Technical Assistance Center (TAC) for recommendations:

- Use a standard 19-inch (48.3-cm), four-post Electronic Industries Alliance (EIA) cabinet or rack with mounting rails that conform to English universal hole spacing per section 1 of the ANSI/EIA-310-D-1992 standard.
- The depth of a four-post rack must be 24 to 32 inches (61.0 to 81.3 cm) between the front and rear mounting rails (for proper mounting of the bottom-support brackets or other mounting hardware).

Also, you must have power receptacles that are located within reach of the power cords that are used with the switch.



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**Warning** **Statement 1048**—Rack Stabilization

The rack stabilizing mechanism must be in place, or the rack must be bolted to the floor before installation or servicing. Failure to stabilize the rack can cause bodily injury.

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## CHAPTER 3

# Installing the Chassis

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- [Installation Options with Rack-Mount Kits, on page 15](#)
- [Install a Rack, on page 15](#)
- [Unpacking and Inspecting a New Switch, on page 16](#)
- [Planning How to Position the Chassis in the Rack, on page 17](#)
- [Installing the Chassis in a Four-Post Rack, on page 18](#)
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- [Starting the Switch, on page 26](#)

## Installation Options with Rack-Mount Kits

The rack-mount kit enables you to install the switch into racks of varying depths. You can position the switch with easy access to either the port connections or the fan and power supply modules.

You can install the switch using the following rack-mount options:

- Rack-mount kit (N9K-C9300-RMK) which you can order from Cisco.

For four post racks.

The rack or cabinet that you use must meet the requirements listed the in [General Requirements for Cabinets and Racks, on page 39](#) section.



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**Note** You are responsible for verifying that your rack and rack-mount hardware comply with the guidelines that are described in this doc.

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## Install a Rack

Before you install the switch, you must install a standard four-post, 19-inch EIA data center rack (or a cabinet that contains such a rack) that meets the requirements listed in [Overview of Racks, on page 39](#).

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**Step 1** Bolt the rack to the concrete subfloor before moving the chassis onto it.

**Warning Statement 1048**—Rack Stabilization

The rack stabilizing mechanism must be in place, or the rack must be bolted to the floor before installation or servicing. Failure to stabilize the rack can cause bodily injury.

**Step 2** If the rack has bonded construction, connect it to the earth ground. This action enables you to easily ground the switch and its components and to ground your electrostatic discharge (ESD) wrist strap to prevent damaging discharges when you handle ungrounded components before installing them.

**Step 3** Include one or two power sources at the rack. For AC power, provide a power receptacle. For DC power, provide a circuit breaker with terminals for connecting power cables.

**Warning Statement 1018**—Supply Circuit

To reduce risk of electric shock and fire, take care when connecting units to the supply circuit so that wiring is not overloaded.

**Note** If you are not using power redundancy or are using  $n+1$  redundancy, you need only one power source. If you are using  $n+n$  redundancy, you need two power sources.

## Unpacking and Inspecting a New Switch

Before you install a new chassis, you need to unpack and inspect it to be sure that you have all the items that you ordered and verify that the switch was not damaged during shipment. If anything is damaged or missing, contact your customer representative immediately.



**Caution** When you handle the chassis or its components, you must follow ESD protocol at all times to prevent ESD damage. This protocol includes but is not limited to wearing an ESD wrist strap that you connect to the earth ground.



**Tip** Do not discard the shipping container when you unpack the switch. Flatten the shipping cartons and store them. If you need to move or ship the system in the future, you will need this container.

**Step 1** Compare the shipment to the equipment list that is provided by your customer service representative and verify that you have received all of the ordered items.

The shipment should include the following:

- Switch chassis, which includes the following installed components:
  - Two power supplies (any combination of the following with the airflow direction being the same as for the fan modules):
    - 1400-W AC power supply
    - Port-side exhaust AC power supply with blue coloring (NXA-PAC-1400W-PE)

- Port-side intake AC power supply with burgundy coloring (NXA-PAC-1400W-PI)
- 2000-W DC power supply
  - Port-side exhaust DC power supply with blue coloring (NXA-PDC-2KW-PE)
  - Port-side intake DC power supply with burgundy coloring (NXA-PDC-2KW-PI)
- 2000-W HVAC/HVDC power supply
  - HVAC/HVDC DC airflow power intake with burgundy coloring (NXA-PHV-2KW-PI)
- Four fan modules (all fan and power supply modules must have the same airflow direction)
  - Port-side exhaust airflow with blue coloring (NXASFAN-160CFM-PE)
  - Port-side intake airflow with burgundy coloring (NXASFAN-160CFM-PI)
- Switch accessory kit

**Step 2** Check the contents of the box for damage.

**Step 3** If you notice any discrepancies or damage, send the following information to your customer service representative by email:

- Invoice number of the shipper (see the packing slip)
- Model and serial number of the missing or damaged unit
- Description of the problem and how it affects the installation

---

## Planning How to Position the Chassis in the Rack

The switch is designed so that you can have coolant air flow through the switch in one of the two following directions:

- Enter the port side and exhaust out the power supply side (port-side intake airflow)
- Enter the power supply side and exhaust out the port side (port-side exhaust airflow)

For port-side intake airflow, the switch must have port-side intake fan and AC power supply modules with one or more of the following colorings:

- Red coloring on fan modules and AC power supplies
- Blue coloring on DC power supplies
- Red coloring on 2000-W HVAC/HVDC power supplies (dual-direction airflow power supplies with their airflow direction set by the fan modules)

For port-side exhaust airflow, the switch must have port-side exhaust fan and AC power supply modules with one or more of the following colorings:

- Blue coloring on fan modules and AC power supplies
- Blue coloring on DC power supplies

You can plan the positioning of the switch so that its ports are located close to ports on connected devices or so that the fan and power supply modules are conveniently located in a maintenance aisle, and then order the modules that move coolant air in the appropriate direction from the cold aisle to the hot aisle.



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**Note** All fan and power supply modules in the same switch must operate with the same direction of airflow and the air intake portion of the switch must be located in a cold aisle.

---

## Installing the Chassis in a Four-Post Rack

Before you install the chassis, be sure that the rack is fully secured to the data center floor.

### Installing the Switch using the NXK-ACC-KIT2-2RU Rack-Mount Kit

To install the switch, you must attach inner rails to the chassis, attach the outer rails to the rack, slide the switch onto the outer rails, and secure the switch to the rack with the retainer screws. Typically, the front of the rack is the side easiest to access for maintenance.

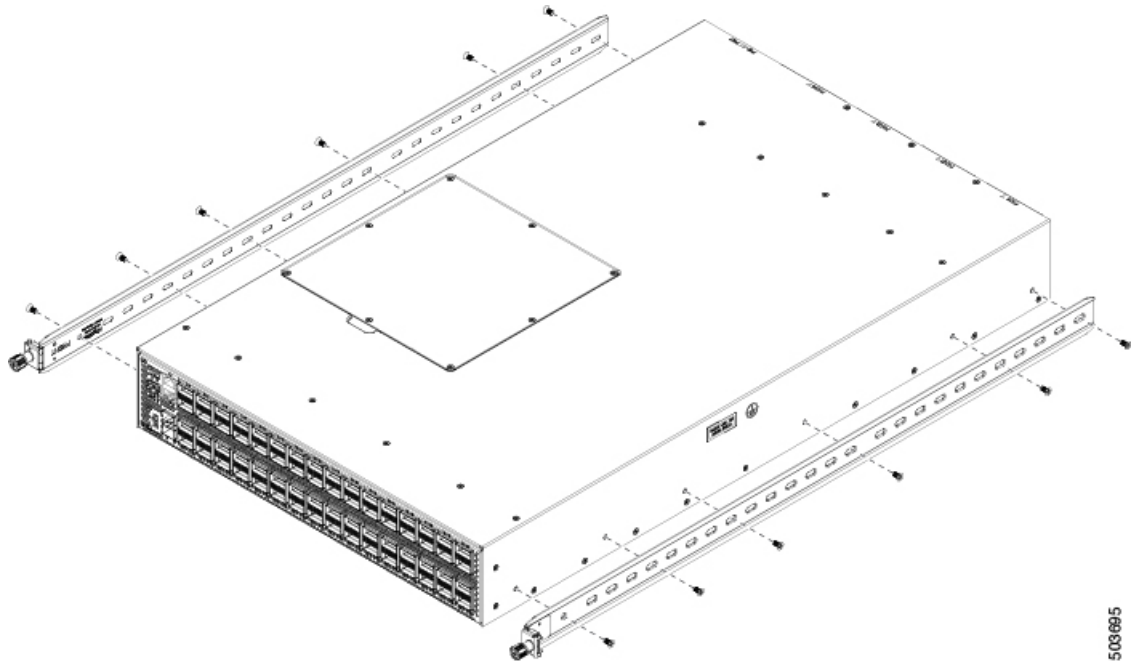
#### Before you begin

- You have inspected the switch shipment to ensure that you have everything ordered.
- Make sure that the switch rack-mount kit includes the following parts:
  - Rack-mount inner rails (2)
  - Rack-mount outer rails (2)
  - Flat head screws (12)
- The rack is installed and secured to its location.

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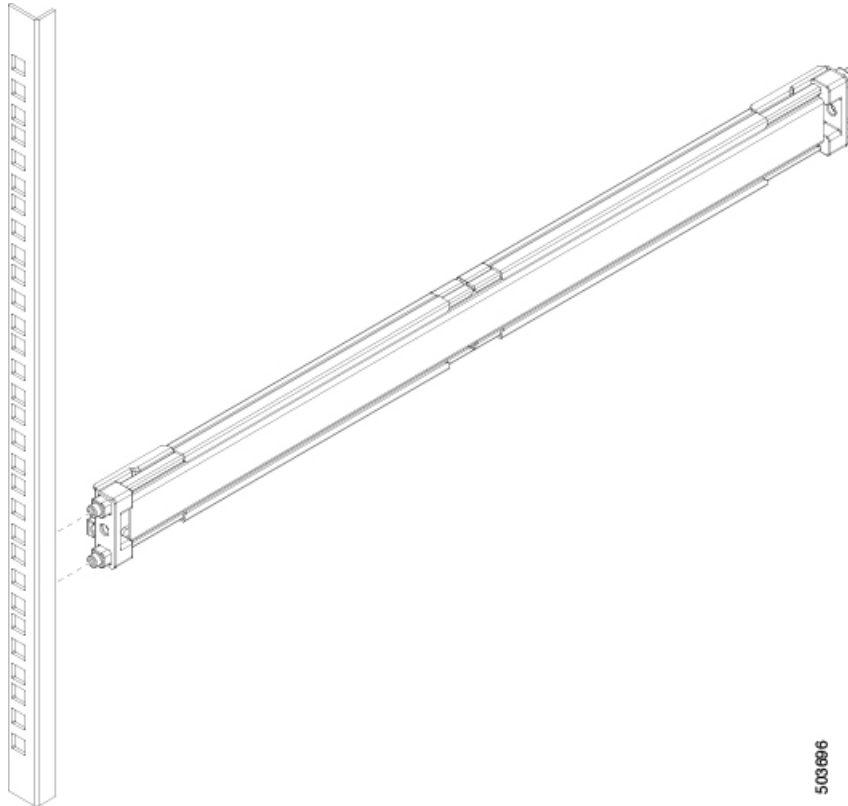
**Step 1** Install the two inner rails to the sides of the chassis using flat-head screws, as shown in the following illustration:





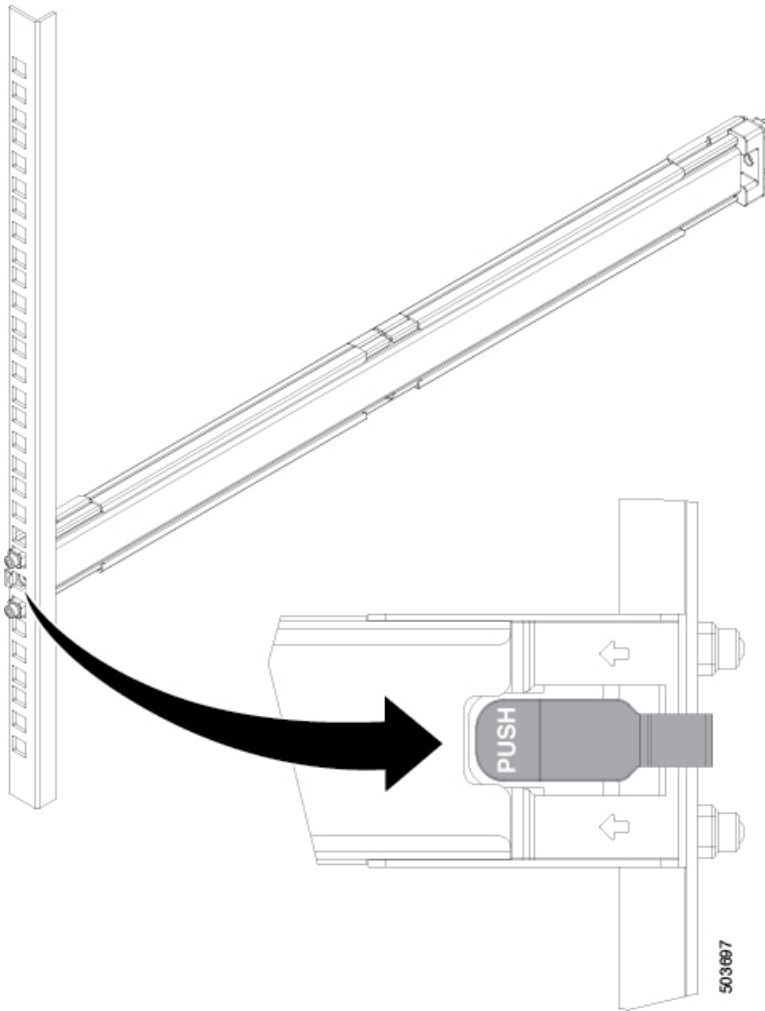
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**Step 2** Install the two outer rails to the front posts of the rack by aligning the rails to the post holes, as shown in the following illustration:

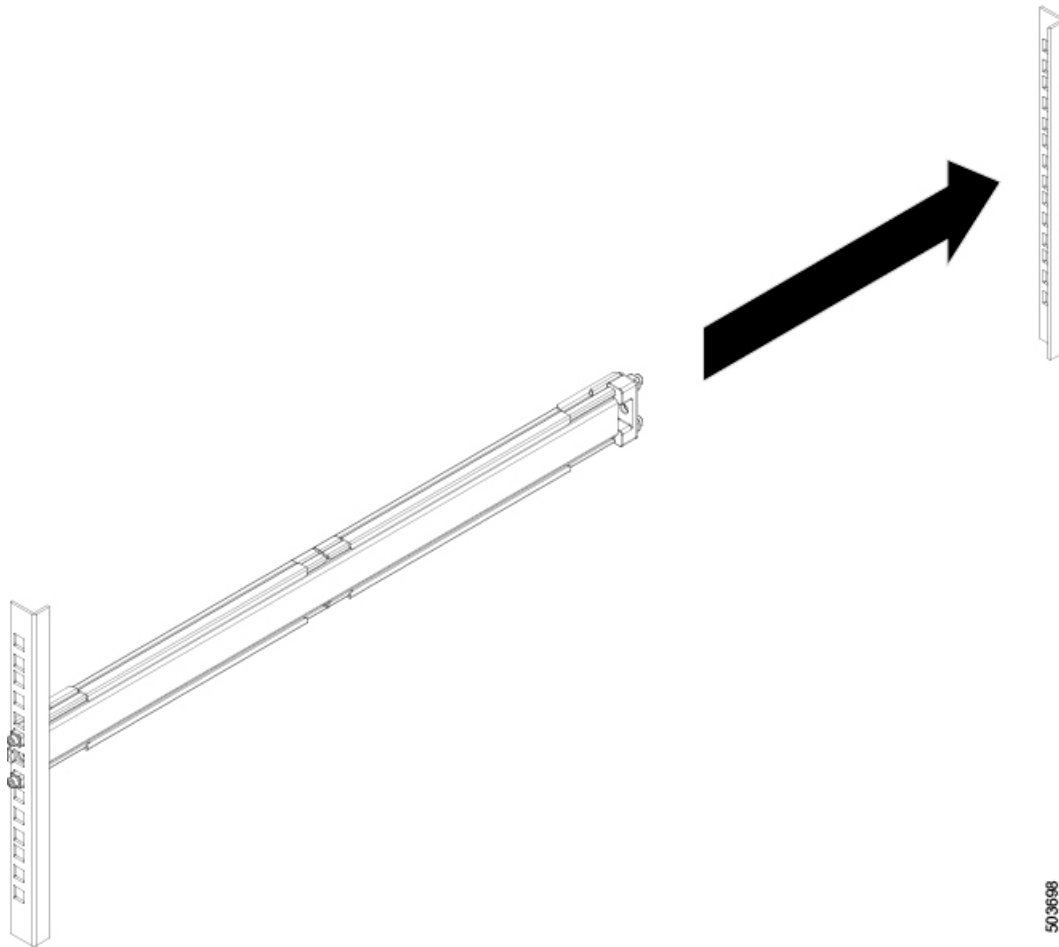


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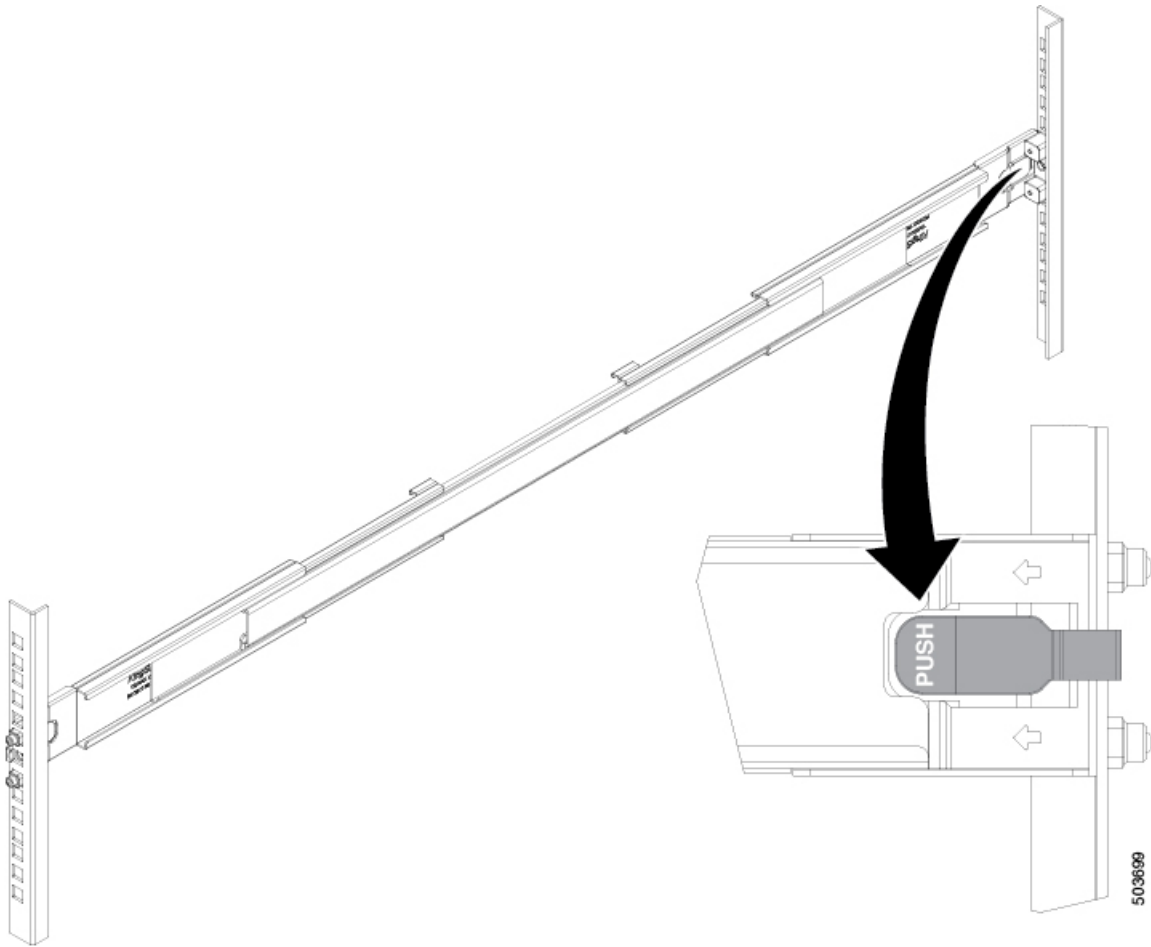
**Step 3** Fasten the two outer rails to the front posts of the rack by pushing the latch into place, as shown in the following illustration:



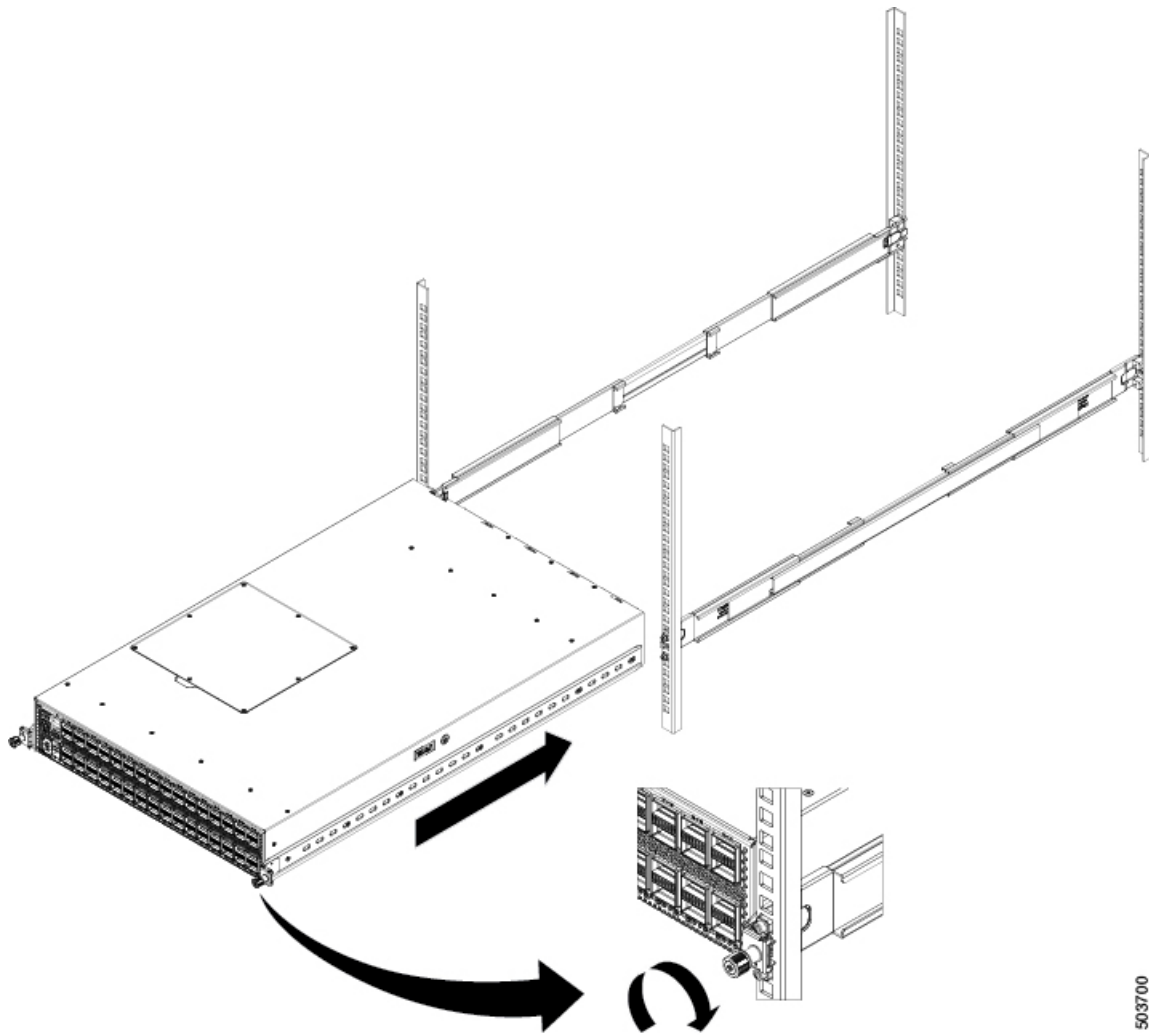
**Step 4** Install the two outer rails to the back posts of the rack by extending them into place, as shown in the following illustration:



**Step 5** Fasten the two outer rails to the back posts of the rack by pushing the latch into place, as shown in the following illustration:



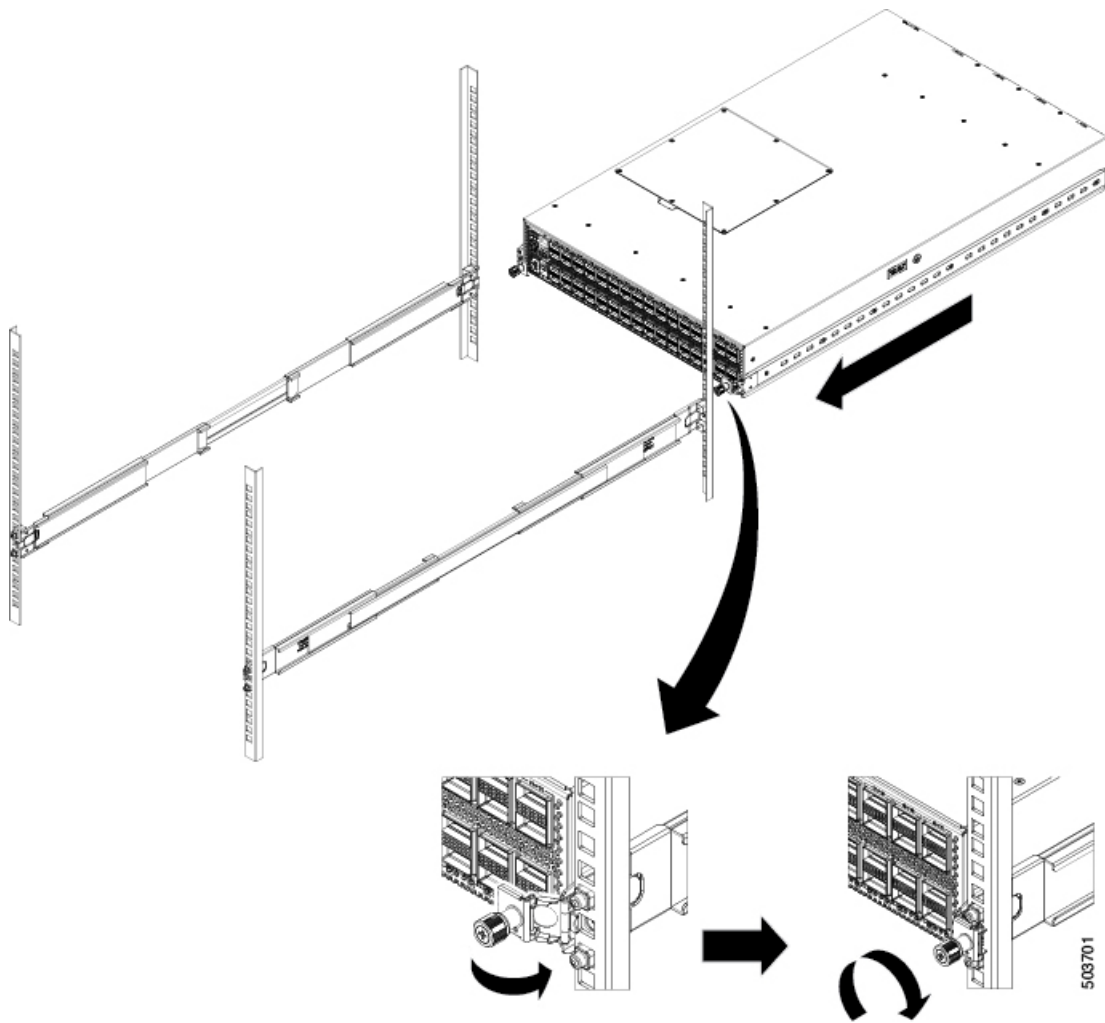
- Step 6** If installing from the front of the rack, slide the chassis into the rack by aligning the inner rails into the outer rails, and sliding the chassis back until the front panel is flush with the front of the rack. Then secure the retainer screws on the inner rails into the rack, as shown in the following illustration:



503700

**Step 7**

If installing from the back of the rack, slide the chassis into the rack by aligning the inner rails into the outer rails, and sliding the chassis forward until the front panel is flush with the front of the rack. Then slide the retainer screws out to align with the rack and then secure the thumb-screws on the inner rails into the rack, as shown in the following illustration:



## Grounding the Chassis

The switch chassis is automatically grounded when you properly install the switch in a grounded rack with metal-to-metal connections between the switch and rack.



**Note** An electrical conducting path shall exist between the product chassis and the metal surface of the enclosure or rack in which it is mounted or to a grounding conductor. Electrical continuity shall be provided by using thread-forming type mounting screws that remove any paint or non-conductive coatings and establish a metal-to-metal contact. Any paint or other non-conductive coatings shall be removed on the surfaces between the mounting hardware and the enclosure or rack. The surfaces shall be cleaned and an antioxidant applied before installation.

You can also ground the chassis, which is required if the rack is not grounded, by attaching a customer-supplied grounding cable. Attach the cable to the chassis grounding pad and the facility ground.



**Warning Statement 1024—Ground Conductor**

This equipment must be grounded. To reduce the risk of electric shock, never defeat the ground conductor or operate the equipment in the absence of a suitably installed ground conductor. Contact the appropriate electrical inspection authority or an electrician if you are uncertain that suitable grounding is available.



**Warning Statement 1046—Installing or Replacing the Unit**

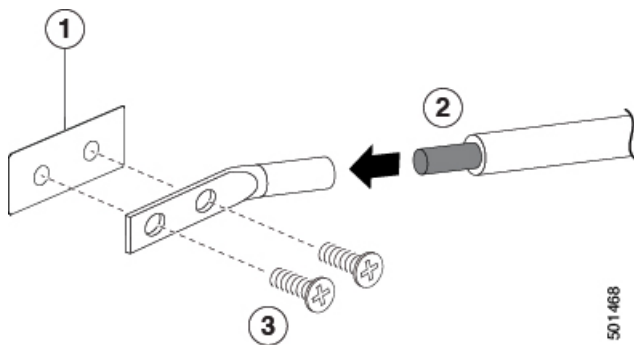
To reduce risk of electric shock, when installing or replacing the unit, the ground connection must always be made first and disconnected last.

**Before you begin**

Before you can ground the chassis, you must have a connection to the earth ground for the data center building.

**Step 1** Use a wire-stripping tool to remove approximately 0.75 inch (19 mm) of the covering from the end of the grounding wire. We recommend 6-AWG wire for the U.S. installations.

**Step 2** Insert the stripped end of the grounding wire into the open end of the grounding lug. Use a crimping tool to crimp the lug to the wire, see the following figure. Verify that the ground wire is securely attached to the grounding lug by attempting to pull the wire out of the crimped lug.



1	Chassis grounding pad	3	2 M4 screws are used to secure the grounding lug to the chassis
2	Grounding cable, with 0.75 in. (19 mm) of insulation that is stripped from one end, which is inserted into the grounding lug and crimped in place		

**Step 3** Secure the grounding lug to the chassis grounding pad with two M4 screws, see the previous figure. Tighten the screws to 11 to 15 in-lb (1.24 to 1.69 N·m) of torque.

**Step 4** Prepare the other end of the grounding wire and connect it to the facility ground.

# Starting the Switch

You start the switch by connecting it to its dedicated power source. If you need  $n+n$  redundancy, you must connect each power supply in a switch to a different power source.



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**Note** This equipment is designed to boot up in less than 30 minutes, dependent on its neighboring devices being fully up and running.

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## Before you begin

- The switch must be installed and secured to a rack or cabinet.
- The switch must be adequately grounded.
- The rack must be close enough to the dedicated power source so that you can connect the switch to the power source by using a designated power cables.
- You have the designated power cables for the power supplies that you are connecting to the dedicated power sources.



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**Note** Depending on the outlet receptacle on your AC power distribution unit, you might need an optional jumper power cord to connect the switch to your outlet receptacle.

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- The switch is not connected to the network (this includes any management or interface connections).
- The fan and power supply modules are fully secured in their chassis slots.

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**Step 1** For any AC power supply, do the following:

- a) Using the recommended AC power cable for your country or region, connect one end to the AC power supply.
- b) Connect the other end of the power cable to the AC power source.

**Step 2** For any HVAC/HVDC power supply, connect it to a power source as follows:

- a) Using the recommended high voltage power cable for your country or region, connect the Anderson Power Saf-D-Grid connector on the power cable to the power receptacle on the power supply. Make sure that the connector clicks when fully pushed into the receptacle.
- b) Connect the other end of the power cable to a power source.
  - When connecting to an HVAC power source, insert the plug in a receptacle for the HVAC power source.
  - When connecting to an HVDC power source, do the following:
    1. Place the power cable ground-wire terminal ring on the ground terminal for the power source and secure them with a terminal nut.
    2. Verify that the power is turned off at a circuit breaker for the power source terminals.
    3. Remove the nuts from each of the terminal posts for the power supply.



4. Place the power cable negative-wire terminal ring on the negative terminal for the power source and secure them with a terminal nut.
5. Place the power cable positive-wire terminal ring on the positive terminal for the power source and secure them with a terminal nut.
6. If there is a safety cover for the power source terminals, place and secure it over the terminals to avoid an electrical shock hazard.
7. Turn on the power at the power source circuit breaker.

**Step 3** For any DC power supply, do the following:

- a) Turn off the circuit breaker for the power source to avoid an electrical shock hazard.
- b) Verify that the power cable wires from the power source are connected to a connector block.
- c) Insert the connector block into the receptacle on the power supply. Make sure that the connector block clicks when fully inserted in the receptacle and does not pull out.
- d) If there is a safety cover for the terminals, place and secure it over the terminals to avoid an electrical shock hazard.
- e) Turn on the power at the circuit breaker for the DC power source.

**Step 4** Verify that the power supply LED is on and green.

**Step 5** Listen for the fans; they should begin operating when the power supply is powered.

**Step 6** After the switch boots, verify that the following LEDs are lit:

- On the fan modules, the Status (STA or STS) LED is green.  
If a fan module Status LED is not green, try reinstalling the fan module.
- After initialization, the switch chassis Status (labeled as STA or STS) LED is green.

**Step 7** Verify that the system software has booted and the switch has initialized without error messages.

A setup utility automatically launches the first time that you access the switch and guides you through the basic configuration. For instructions on how to configure the switch and check module connectivity, see the appropriate Cisco Nexus 9000 Series configuration guide.

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## CHAPTER 4

# Connecting the Switch to the Network

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- [Setting Up the Management Interface, on page 29](#)
- [Uplink Connections, on page 29](#)
- [Connecting to Host Servers, on page 30](#)
- [Guidelines for Connecting Ports, on page 30](#)
- [Maintaining Transceivers and Optical Cables, on page 31](#)

## Setting Up the Management Interface

The management port (MGMT ETH) provides out-of-band management, which enables you to use the command-line interface (CLI) to manage the switch by its IP address. This port uses a 10/100/1000 Ethernet connection with an RJ-45 interface.

### Before you begin

The switch must be powered on.

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**Step 1** Connect the management cable into the management port on the switch. For shorter connections, you can use a cable with RJ-45 connectors. For longer connections, you can use an optical cable with SFP transceivers (LH or SX type).

**Note** Use only one of these management ports—the switch does not support the use of both management ports.

**Step 2** Connect the other end of the cable to a 10/100/1000 Ethernet port on a network device.

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### What to do next

You are ready to connect the interface ports on each of the line cards to the network.

## Uplink Connections

For a list of transceivers and cables used by this switch for uplink connections, see <http://www.cisco.com/c/en/us/support/interfaces-modules/transceiver-modules/products-device-support-tables-list.html>.

**Warning Statement 1051—Laser Radiation**

Invisible laser radiation may be emitted from disconnected fibers or connectors. Do not stare into beams or view directly with optical instruments.

## Connecting to Host Servers

To determine which transceivers and cables are supported by this switch, see <http://www.cisco.com/c/en/us/support/interfaces-modules/transceiver-modules/products-device-support-tables-list.html>. To see the transceiver specifications and installation information, see <http://www.cisco.com/c/en/us/support/interfaces-modules/transceiver-modules/products-installation-guides-list.html>.

## Guidelines for Connecting Ports

For information about the transceivers currently being used with the switch, use the **show inventory all** command.

Prevent damage to the fiber-optic cables that can separate from their cables. Keep the transceivers disconnected from their fiber-optic cables when installing the transceiver in the line card. Before removing such a transceiver from the switch, remove the cable from the transceiver.

To maximize the effectiveness and life of your transceivers and optical cables, do the following:

- Wear an ESD-preventative wrist strap that is connected to an earth ground whenever handling transceivers. The switch is typically grounded during installation and provides an ESD port to which you can connect your wrist strap.
- Do not remove and insert a transceiver more often than is necessary. Repeated removals and insertions can shorten its useful life.
- Keep the transceivers and fiber-optic cables clean and dust free to maintain high signal accuracy and to prevent damage to the connectors. Contamination causes increased attenuation (loss of light), and should be kept below 0.35 dB.
  - Clean these parts before installation to prevent dust from scratching the fiber-optic cable ends.
  - Clean the connectors regularly; the required frequency of cleaning depends upon the environment. In addition, clean connectors if they are exposed to dust or accidentally touched. Both wet and dry cleaning techniques can be effective; refer to your site's fiber-optic connection cleaning procedures.
  - Do not touch the ends of connectors. Touching the ends can leave fingerprints and cause other contamination.
- Inspect routinely for dust and damage. If you suspect damage, clean and then inspect fiber ends under a microscope to determine if damage has occurred.
- To minimize the chance of damaging transceivers when installing them, slide them gently into their switch slots. Never force transceivers all the way into the slots. If the transceiver stops part way into the slot, it might be upside down. Remove the transceiver before turning it over and reinstalling it. If positioned correctly, the transceiver slides all the way into the slot and clicks when fully installed.

**Warning Statement 1051—Laser Radiation**

Invisible laser radiation may be emitted from disconnected fibers or connectors. Do not stare into beams or view directly with optical instruments.

**Warning Statement 1055—Class 1/1M Laser**

Invisible laser radiation is present. Do not expose to users of telescopic optics. This applies to Class 1/1M laser products.

**Warning Statement 1056—Unterminated Fiber Cable**

Invisible laser radiation may be emitted from the end of the unterminated fiber cable or connector. Do not view directly with optical instruments. Viewing the laser output with certain optical instruments, for example, eye loupes, magnifiers, and microscopes, within a distance of 100 mm, may pose an eye hazard.

## Maintaining Transceivers and Optical Cables

Transceivers and fiber-optic cables must be kept clean and dust free to maintain high signal accuracy and prevent damage to the connectors. Contamination increases attenuation (loss of light) and should be below 0.35 dB.

Consider the following maintenance guidelines:

- Transceivers are static sensitive. To prevent ESD damage, wear an ESD-preventative wrist strap that is connected to the grounded chassis.
- Do not remove and insert a transceiver more often than is necessary. Repeated removals and insertions can shorten its useful life.
- Keep all optical connections covered when not in use. Clean them before using to prevent dust from scratching the fiber-optic cable ends.
- Do not touch the ends of connectors. Touching the ends can leave fingerprints and cause other contamination.
- Clean the connectors regularly; the required frequency of cleaning depends upon the environment. In addition, clean connectors if they are exposed to dust or accidentally touched. Both wet and dry cleaning techniques can be effective; refer to the fiber-optic connection cleaning procedures for your site.
- Inspect routinely for dust and damage. If you suspect damage, clean and then inspect fiber ends under a microscope to determine if damage has occurred.





## CHAPTER 5

# Replacing Components

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- [Replacing a Fan Module During Operations, on page 33](#)
- [Replacing a Power Supply Module, on page 35](#)

## Replacing a Fan Module During Operations

All fan and power supply modules must have the same airflow direction or else an error can occur with the switch overheating and shutting down. You can determine the airflow direction of a fan module by the color of the stripe on the front of the module. If the fan module has a blue stripe for port-side exhaust airflow, the power supplies must have blue coloring for the same airflow direction. If the fan module has a burgundy stripe for port-side intake airflow, the power supplies must have burgundy coloring for the same airflow direction. To avoid over heating the switch, make sure that the fan modules are positioned in one of the following ways:

- For port-side exhaust airflow with blue coloring, position the fan modules in a cold aisle.
- For port-side intake airflow with burgundy coloring, position the ports in a cold aisle.

### Before you begin

Before you can replace a fan module, ensure that the following conditions exist:

- There are four functioning fan modules in the other fan slots. In order to replace a fan module during operations, there must be three fan modules circulating air in the chassis at all times. The other fan module is redundant and can be replaced.
- The replacement fan module must have the same airflow direction as the other modules in the chassis.

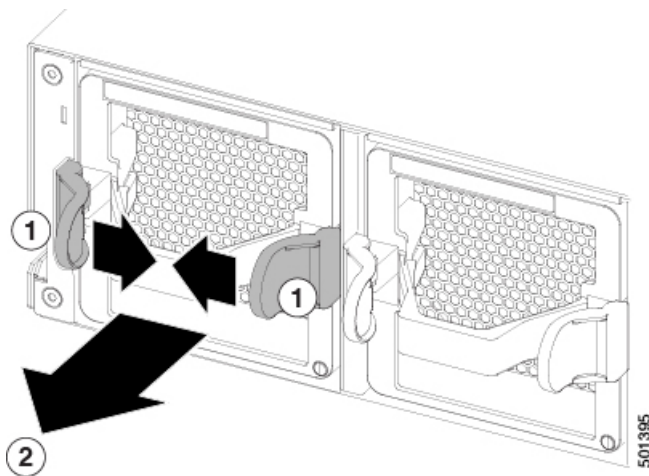
If you must replace the fan module during operations and the above conditions are not met, leave the fan module that you need to replace in the chassis to preserve the designed airflow until you have the required module.

---

### Step 1

Remove the fan module that you need to replace as follows:

- a) Press the two colored sides of the fan module handle towards each other and pull the handle to slide the module out of the chassis.



1	Press inward on both colored slides of the handle.	2	While holding the sides inward, pull on the handle to remove the module from the chassis.
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- b) Place the removed module on an antistatic surface or in an antistatic bag. If possible, repack the module in its packing materials for safe shipping or storage.

## Step 2

Follow these steps to replace the missing fan module within two minutes to avoid a shutdown.

- a) Remove the replacement fan module from its packing materials and place it on an antistatic surface.

Hold the module by its handle and do not touch the electrical connectors on its backside. Also, to protect the electrical connectors, avoid letting them come in contact with anything other than the electrical connectors inside the chassis.

- b) Verify that you have the right fan module for the chassis. The correct fan module has one of the following part numbers:

- NXASFAN-160CFM-2PE (port-side exhaust airflow direction and a blue stripe)
- NXASFAN-160CFM-2PI (port-side intake airflow direction and a red stripe)

**Note** Be sure that the airflow direction of the new fan module matches the airflow direction of the other fan and AC power supply modules already installed in the chassis. Port-side intake airflow is indicated with red coloring, and port-side exhaust airflow is indicated with blue coloring. Power supplies with dual-direction airflow (airflow direction is set by the fan modules) have white coloring.

- c) Position the fan module in front of the open fan slot (be sure that the backside of the module with the electrical connectors is positioned to enter the slot first) and slide the module all the way into the chassis until its front side comes in contact with the chassis. For the last 0.2 inches (0.5 cm), carefully mount the module onto the chassis connectors by pushing more firmly, but do not force the module if it does not move further (excessive force can damage the connectors).

**Note** If you are not able to push the module all the way into the slot, carefully slide the module out of the slot and check its electrical connectors for damage. If damaged, contact Cisco Technical Assistance for help. If undamaged, repeat this step to reinstall the module.

- d) Verify that the STS LED turns on and becomes green.



If the STS LED does not turn on, slide the module out of the chassis, and visually check the electrical connectors on the back side of the chassis for damage. If damaged, contact Cisco Technical Assistance for help. If undamaged, repeat the previous step to reinstall the module.

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## Replacing a Power Supply Module

The switch requires two power supplies for redundancy. With one power supply providing the necessary power for operations, you can replace the other power supply during operations so long as the new power supply has the same airflow direction as the other modules in the chassis.

You can replace a power supply with another supported power supply that has the same power source type as the other installed power supply. Additionally, the airflow direction of the power supply must match or conform to the airflow direction of the installed fan modules. For the airflow direction used by the switch, see the coloring of the fan modules.

## Installing an AC Power Supply

You can replace one power supply while the other one provides power to the switch.

### Before you begin

- The power supply that you are installing must be capable of using the same airflow direction as the fan trays installed in the same switch and it must use the same type of power source as the other power supply installed in the same switch. (do not mix AC and DC power supplies in the same switch) A mix of AC and DC power supplies in the same switch are supported for hot swapping purposes within a time limit of 15 minutes..



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**Note** HVAC/HVDC power supply with red coloring have the same port-side intake airflow direction as the power supplies with red coloring . If the power supply that you are replacing has a different color handle than the replacement power supply, verify that it has or will have the same airflow direction as the other modules in the switch.

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- An AC power source must be within reach of the power cable that will be used with the replacement power supply. If you are using  $n+n$  power redundancy, there must be a separate power source for each power supply installed in the chassis. Otherwise, only one power source is required.
- There must be an earth ground connection to the chassis that you are installing the replacement module. Typically, the chassis is grounded by its metal-to-metal connection with a grounded rack. If you need to ground the chassis, see [Grounding the Chassis, on page 24](#).

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### Step 1

Holding the replacement power supply with one hand underneath the module and the other hand holding the handle, turn the power supply so that its release latch is on the side and align the back end of the power supply (the end with the electrical connections) to the open power supply slot before carefully sliding the power supply all the way into the slot until it clicks into place.

**Note** If the power supply does not fit into the open slot, turn the module over before sliding it carefully into the open slot.

**Step 2** Test the installation by trying to pull the power supply out of the slot without using the release latch. If the power supply does not move out of place, it is secured in the slot. If the power supply moves, carefully press it all the way into the slot until it clicks in place.

**Step 3** Attach the power cable to the electrical inlet on the front of the power supply.

**Step 4** Make sure that the other end of the power cable is attached to the appropriate power source for the power supply.

**Note** Depending on the outlet receptacle on your power distribution unit, you might need the optional jumper cable to connect the switch to your outlet receptacle.

**Step 5** Verify that the power supply is operational by making sure that the power supply LED is green.

## Installing an HVAC/HVDC Power Supply

You can replace one power supply while the other one provides power to the switch.



**Note** If the power supply that you are replacing has a different color handle than the replacement power supply, verify that it has or will have the same airflow direction as the other modules in the switch.

### Before you begin

- If you are using DC power for the replacement power supply, the circuit breaker for the power feed to the power supply that you are replacing must be turned off.
- If you are using  $n+n$  power redundancy, there must be a separate power source for each power supply installed in the chassis (power sources must be of the same type—do not mix AC and DC power sources for the same switch). Otherwise, only one power source is required.
- There must be an earth ground connection to the chassis that you are installing the replacement module. Typically, the chassis is grounded by its metal-to-metal connection to a grounded rack. If you need to ground this chassis by another means, see [Grounding the Chassis, on page 24](#).

**Step 1** Holding the replacement power supply with one hand underneath the module and the other hand holding the handle, turn the power supply so that its release latch is on the side and align the back end of the power supply (the end with the electrical connections) to the open power supply slot before carefully sliding the power supply all the way into the slot until it clicks into place.

**Note** If the power supply does not fit into the open slot, turn the module over before sliding it into the open slot.

**Step 2** Test the installation by trying to pull the power supply out of the slot without using the release latch.

If the power supply does not move out of place, it is secured in the slot. If the power supply moves, carefully press it all the way into the slot until it clicks in place.

- Step 3** If the DC power cables and a grounding cable are already connected to an electrical connector block, insert the block into the power receptacle on the power supply.
- Step 4** Make sure that the other end of the power cable is connected to the appropriate power source for the power supply.
- Step 5** If using a DC power source, turn on the circuit breaker for the DC power source connected to the power supply.
- Step 6** Verify that the power supply is operational by making sure that the power supply LED is green.
- 

## Installing a DC Power Supply

You can replace one power supply while the other one provides power to the switch.

### Before you begin

- The circuit breaker for the DC power source for the power supply must be turned off.
- The power supply that you are installing must be capable of using the same airflow direction as the fan trays installed in the same switch
- A DC power source must be within reach of the power cable that will be used with the replacement power supply. If you are using  $n+n$  power redundancy, there must be a separate power source for each power supply installed in the chassis (do not mix AC and DC power sources for the same switch). Otherwise, only one power source is required.
- There must be an earth ground connection to the chassis that you are installing the replacement module. Typically, the chassis is grounded by its metal-to-metal connection to a grounded rack. If you need to ground this chassis by another means, see [Grounding the Chassis, on page 24](#).
- We recommend 8-AWG wire for DC installation in the U.S.
- All DC power supplies have reverse polarity protection. When you inadvertently connect the input power (+) to the DC PSU's – terminal and the input power – to the DC PSU's (+) terminal, the PSU will not be damaged and will operate fine after the input power feeds are correctly wired.

- 
- Step 1** Holding the replacement power supply with one hand underneath the module and the other hand holding the handle, turn the power supply so that its release latch is on the side and align the back end of the power supply (the end with the electrical connections) to the open power supply slot before carefully sliding the power supply all the way into the slot until it clicks into place.

**Note** If the power supply does not fit into the open slot, turn the module over before carefully sliding it into the open slot.

- Step 2** If the DC power cables and a grounding cable are already connected to an electrical connector block, insert the block into the power receptacle on the power supply.
- Step 3** Turn on the circuit breaker for the DC power source connected to the power supply.
- Step 4** Verify that the power supply is operational by making sure that the power supply LED is green.
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## APPENDIX **A**

# Rack Specifications

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- [Overview of Racks, on page 39](#)
- [General Requirements for Cabinets and Racks, on page 39](#)
- [Requirements Specific to Standard Open Racks, on page 40](#)
- [Requirements Specific to Perforated Cabinets, on page 40](#)
- [Cable Management Guidelines, on page 40](#)

## Overview of Racks

You can install the switch in the following types of cabinets and racks, assuming an external ambient air temperature range of 0 to 104°F (0 to 40°C):

- Standard perforated cabinets
- Solid-walled cabinets with a roof fan tray (bottom to top cooling)
- Standard open racks



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**Note** If you are selecting an enclosed cabinet, we recommend one of the thermally validated types, either standard perforated or solid-walled with a fan tray.

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**Note** We do not recommend that you use racks that have obstructions (such as power strips), because the obstructions could impair access to field-replaceable units (FRUs).

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## General Requirements for Cabinets and Racks

The cabinet or rack must also meet the following requirements:

- Standard 19-inch (48.3 cm) (two- or four-post EIA cabinet or rack, with mounting rails that conform to English universal hole spacing per section 1 of ANSI/EIA-310-D-1992). For more information, see [Requirements Specific to Perforated Cabinets, on page 40](#).

- The minimum vertical rack space requirement per chassis is:
  - For a one RU (rack unit) switch, 1.75 inches (4.4 cm)
  - For a one and a half RU (rack unit) switch, 2.63 (6.68 cm)
  - For a two RU (rack unit) switch, 3.5 inches (8.8 cm)
  - For a three RU (rack unit) switch, 5.25 inches (13.3 cm)
- The width between the rack-mounting rails must be at least 17.75 inches (45.0 cm) if the rear of the device is not attached to the rack. For four-post EIA racks, this measurement is the distance between the two front rails.

Four-post EIA cabinets (perforated or solid-walled) must meet the following requirements:

- The minimum spacing for the bend radius for fiber-optic cables should have the front-mounting rails of the cabinet offset from the front door by a minimum of 3 inches (7.6 cm).
- The distance between the outside face of the front mounting rail and the outside face of the back mounting rail should be 23.0 to 30.0 inches (58.4 to 76.2 cm) to allow for rear-bracket installation.

## Requirements Specific to Standard Open Racks

If you are mounting the chassis in an open rack (no side panels or doors), ensure that the rack meets the following requirements:

- The minimum vertical rack space per chassis must be equal to the rack unit (RU) of the chassis. One rack unit is equal to 1.75 inches (4.4 cm).
- The distance between the chassis air vents and any walls should be 2.5 inches (6.4 cm).

## Requirements Specific to Perforated Cabinets

A perforated cabinet has perforations in its front and rear doors and side walls. Perforated cabinets must meet the following requirements:

- The front and rear doors must have at least a 60 percent open area perforation pattern, with at least 15 square inches (96.8 square cm) of open area per rack unit of door height.
- The roof should be perforated with at least a 20 percent open area.
- The cabinet floor should be open or perforated to enhance cooling.

The Cisco R Series rack conforms to these requirements.

## Cable Management Guidelines

To help with cable management, you might want to allow additional space in the rack above and below the chassis to make it easier to route all of the fiber optic or copper cables through the rack.



## APPENDIX **B**

# System Specifications

- [Environmental Specifications, on page 41](#)
- [Switch Dimensions, on page 41](#)
- [Switch and Module Weights and Quantities, on page 41](#)
- [Transceiver and Cable Specifications, on page 42](#)
- [Switch Power Input Requirements, on page 42](#)
- [Power Specifications, on page 42](#)
- [Power Cable Specifications, on page 44](#)
- [Regulatory Standards Compliance Specifications, on page 48](#)

## Environmental Specifications

### Switch Dimensions

Switch	Width	Depth	Height
Cisco Nexus 9364C-H1	17.41 inches (44.23 cm)	22.27 inches (56.58 cm)	3.4 inches (8.6 cm) (2 RU)

### Switch and Module Weights and Quantities

Component	Weight per Unit	Quantity
Cisco Nexus 9364C-H1 Chassis (N9K-C9364C-H1)	44 lb (20 kg)	1
Fan Module	—	2
– Port-side exhaust (blue) (NXASFAN-160CFM-2PE)	1.3 lb (0.59 kg)	
– Port-side intake (red) (NXA-FAN-160CFM-2PI)	1.3 lb (0.59 kg)	

Component	Weight per Unit	Quantity
Power Supply module	—	4 (3 for operations and 1 for redundancy)
– 1400-W AC port-side exhaust (blue) (NXA-PAC-1400W-PE)	2.64 lb (1.2 kg)	
– 1400-W AC port-side intake (red) (NXA-PAC-1400W-PI)	2.64 lb (1.2 kg)	
– 2000-W HVAC/HVDC port intake (red) (NXA-PHV-2KW-PI)	2.42 lb (1.1 kg)	
– 2000-W DC port-side exhaust (blue) (NXA-PDC-2KW-PE)	2.42 lb (1.1 kg)	
– 2000-W DC port-side intake (red) (NXA-PDC-2KW-PI)	2.42 lb (1.1 kg)	

## Transceiver and Cable Specifications

To see the transceiver specifications and installation information, see <https://www.cisco.com/c/en/us/support/interfaces-modules/transceiver-modules/products-device-support-tables-list.html>.

## Switch Power Input Requirements

The following table lists the typical amount of power that the switch consumes. It also lists the maximum amount of power that you must provision for the switch and power supply for peak conditions.



**Note** Some power supplies have capabilities that are greater than the maximum power requirements for a switch. To determine the power consumption characteristics for the switch, use the typical and maximum requirements that are listed in the following table.

Switch	Typical Power Consumption (AC or DC)	Maximum Power Consumption (AC or DC)	Heat Dissipation Requirement
Cisco Nexus 9364C-H1	605 W	1100 W	4248.116 BTUs per hour

## Power Specifications

Power specifications include the specifications for each type of power supply module.

### 1400-W AC Power Supply Specifications

Property	Specification
Power	1400 W



Property	Specification
Input Voltage Range	90 VAC to 140 VAC 180 VAC to 264 VAC
Output Power	1,000W/36W 1,450W/36W
Output 1	Main: 12V/84A Main: 12V/121A
Output 2	Standby: 12V/3A
Redundancy Modes	Combined, $n+1$ , and $n+n$
RoHS Compliance	Yes
Hot Swappable	Yes

## 2000-W AC Power Supply Specifications

These specifications apply to the NXA-PAC-2KW power supplies.

Property	Specification
Power	2000 W
Input Voltage	200-240 VAC, 12A, 50/60 Hz or -48 to -60Vdc, 55A or 200-277 VAC, 12A, 50/60Hz or 240V-380VDC, 12A
Frequency	50 to 60 Hz
Efficiency	90% or greater (20 to 100% load)
Redundancy Modes	Combined, $n+1$ , and $n+n$
RoHS Compliance	Yes
Hot Swappable	Yes

## 2000-W HVAC/HVDC Power Supply Specifications

These specifications apply to the NXA-PHV-2KW power supplies.

Property	Specification
Power	2000 W
Input Voltage	180 to 305 VAC or 192 to 400 VDC

Property	Specification
Frequency	50 to 60 Hz
Efficiency	90% or greater (20 to 100% load)
Redundancy Modes	Combined, $n+1$ , and $n+n$
RoHS Compliance	Yes
Hot Swappable	Yes

## 2000-W DC Power Supply Specifications

These specifications apply to the NXA-PDC-2KW power supplies.

Property	Specification
Power	2000 W
Input Voltage	Minimum to Maximum: -40 to -70 VDC Nominal: -48 to -60 VDC
Frequency	-
Efficiency	90% or greater (20 to 100% load)
Redundancy Modes	Combined, $n+1$ , and $n+n$
RoHS Compliance	Yes
Hot Swappable	Yes

## Power Cable Specifications

The following sections specify the power cables that you can order and use with this switch.

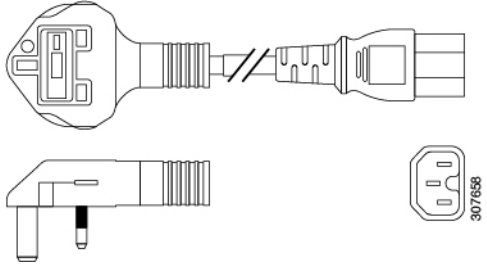
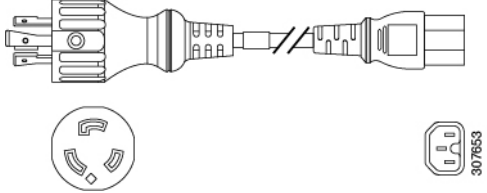
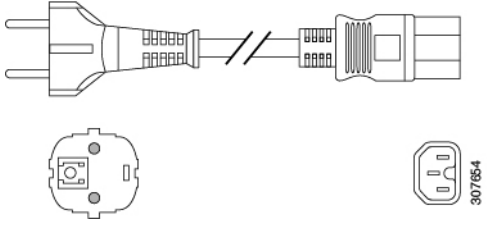
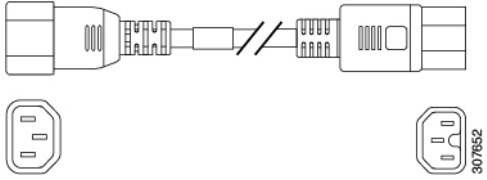
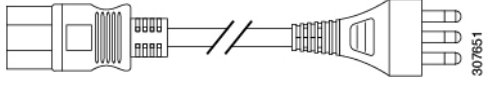
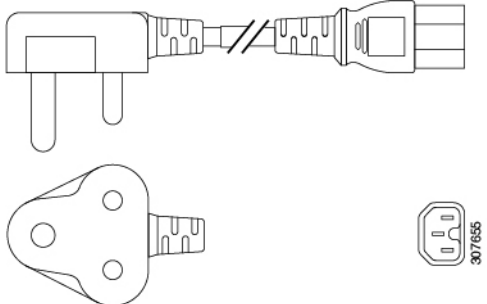
### Power Cable Specifications for AC Power Supplies

Power Type	Power Cord Part Number	Cord Set Description
	CAB-C13-C14-2M	Power Cord Jumper, C13-C14 Connectors, 6.6 feet (2.0 m)
	CAB-C13-CBN	Cabinet jumper power cord, 250 VAC, 10 A, C14-C13 connectors, 2.3 feet (0.7 m)
Argentina	CAB-250V-10A-AR	250 V, 10 A, 8.2 feet (2.5 m)
Australia	CAB-9K10A-AU	250 VAC, 10 A, 3112 plug, 8.2 feet (2.5 m)

Power Type	Power Cord Part Number	Cord Set Description
Brazil	CAB-250V-10A-BR	250 V, 10 A, 6.9 feet (2.1 m)
European Union	CAB-9K10A-EU	250 VAC, 10 A, CEE 7/7 plug, 8.2 feet (2.5 m)
India	CAB-IND-10A	10 A, 8.2 feet (2.5 m)
India	CAB-C13-C14-2M-IN	Power Cord Jumper, C13-C14 Connectors, 6.6 feet (2.0 m)
India	CAB-C13-C14-3M-IN	Power Cord Jumper, C13-C14 Connectors, 9.8 feet (3.0 m)
Israel	CAB-250V-10A-IS	250 V, 10 A, 8.2 feet (2.5 m)
Italy	CAB-9K10A-IT	250 VAC, 10 A, CEI 23-16/VII plug, 8.2 feet (2.5 m)
Japan	CAB-C13-C14-2M-JP	Power Cord Jumper, C13-C14 Connectors, 6.6 feet (2.0 m)
North America	CAB-9K12A-NA	125 VAC, 13 A, NEMA 5-15 plug, 8.2 feet (2.5 m)
North America	CAB-AC-L620-C13	NEMA L6-20-C13, 6.6 feet (2.0 m)
North America	CAB-N5K6A-NA	200/240V, 6A, 8.2 feet (2.5 m)
Peoples Republic of China	CAB-250V-10A-CN	250 V, 10 A, 8.2 feet (2.5 m)
South Africa	CAB-250V-10A-ID	250 V, 10 A, 8.2 feet (2.5 m)
Switzerland	CAB-9K10A-SW	250 VAC, 10 A, MP232 plug, 8.2 feet (2.5 m)
United Kingdom	CAB-9K10A-UK	250 VAC, 10 A, BS1363 plug (13 A fuse), 8.2 (2.5 m)
All except Argentina, Brazil, and Japan	NO-POWER-CORD	No power cord included with switch

## Power Cables for NXA-PAC-2KW Power Supplies

Cable	Description	Illustration
CAB-TA-NA	North America AC Type A Power Cable	

Cable	Description	Illustration
CAB-TA-UK	United Kingdom AC Type A Power Cable	
CAB-TA-250V-JP	Japan 250V AC Type A Power Cable	
CAB-TA-EU	Europe AC Type A Power Cable	
CAB-C15-CBN	Cabinet Jumper Power Cord, 250 VAC 13A, C14-C15 Connectors	
CAB-ACBZ-12A	AC Power Cord (Brazil) 12A/125V BR-3-20 plug up to 12A	
CAB-TA-IN	India AC Type A Power Cable	

Cable	Description	Illustration
CAB-TA-IS	Israel AC Type A Power Cable	

## HVAC/HVDC Power Cables Supported by ACI-Mode and NX-OS Mode Switches

Part Number	Cord Set Description	Photo
CAB-HVAC-SD-0.6M	HVAC 2-foot (0.6 m) cable with Saf-D-Grid and SD connectors 277V AC	
CAB-HVAC-C14-2M	HVAC 6.6-foot (2.0 m) cable with Saf-D-Grid and C14 (use for up to 240 V) connector 250V AC	
CAB-HVAC-RT-0.6M	HVAC 2-foot (0.6 m) cable with Saf-D-Grid and RT connector 277V AC	
CAB-HVDC-3T-2M	HVDC 6.6-foot (2.0 m) cable with Saf-D-Grid and three terminal connectors 300V AC / 400V DC (+200/-200 V DC)	
NO-POWER-CORD	All except Argentina, Brazil, and Japan  No power cord included with switch	Not applicable

Table 2: HVAC/HVDC Power Cables Callout Table

1	Connect this end to the power supply unit.
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## Regulatory Standards Compliance Specifications

The following table lists the regulatory standards compliance for the switch.

Table 3: Regulatory Standards Compliance: Safety and EMC

Specification	Description
Regulatory compliance	Products should comply with CE Markings according to directives 2004/108/EC and 2006/95/EC.
Safety	<ul style="list-style-type: none"> <li>• CAN/CSA-C22.2 No. 60950-1 Second Edition</li> <li>• CAN/CSA-C22.2 No. 62368-1-19 Third Edition</li> <li>• ANZI/UL 60950-1 Second edition</li> <li>• IEC 62368-1</li> <li>• EN 62368-1</li> <li>• AS/NZS 62368-1</li> <li>• GB4943</li> <li>• UL 62368-1</li> </ul>
EMC: Emissions	<ul style="list-style-type: none"> <li>• 47CFR Part 15 (CFR 47) Class A</li> <li>• AS/NZS CISPR22 Class A</li> <li>• CISPR22 Class A</li> <li>• EN55022 Class A</li> <li>• ICES003 Class A</li> <li>• VCCI Class A</li> <li>• EN61000-3-2</li> <li>• EN61000-3-3</li> <li>• KN22 Class A</li> <li>• CNS13438 Class A</li> </ul>

Specification	Description
EMC: Immunity	<ul style="list-style-type: none"><li>• EN55024</li><li>• CISPR24</li><li>• EN300386</li><li>• KN 61000-4 series</li></ul>
RoHS	The product is RoH-6 compliant with exceptions for leaded-ball grid-array (BGA) balls and lead press-fit connectors.







# APPENDIX C

## LEDs

- [Switch Chassis LEDs, on page 51](#)
- [Uplink Module LEDs, on page 52](#)
- [Fan Module LEDs, on page 52](#)
- [Power Supply LEDs, on page 52](#)

### Switch Chassis LEDs

The BCN, STS, and ENV, LEDs are located on the left side of the front of the switch. The port LEDs appear as triangles pointing up or down to the nearest port.

LED	Color	Status
BCN	Flashing blue	The operator has activated this LED to identify this switch in the chassis.
	Off	This switch is not being identified.
STS	Green	The switch is operational.
	Flashing amber	The switch is booting up.
	Amber	Temperature exceeds the minor alarm threshold.
	Red	Temperature exceeds the major alarm threshold.
	Off	The switch is not receiving power.
ENV	Green	Fans and power supply modules are operational.
	Amber	At least one fan or power supply module is not operating.
(port)	Green	Port admin state is 'Enabled', SFP is present and the interface is connected (that is, cabled, and the link is up).
	Amber	Port admin state is 'Disabled, or the SFP is absent, or both.
	Off	Port admin state is 'Enabled' and SFP is present, but interface is not connected.

## Uplink Module LEDs

The Status (STS) LED is located on the left side of the uplink module. There is an ACT LED located below each two uplink ports. Next to each ACT LED are two triangular port LEDs that point to the top or bottom to identify their port as being the top or bottom port.

LED	Color	Status
STS	Green	This module is operational.
	Red	Temperature is not operational.
	Off	The module is not receiving power.
ACT	On (white)	The two ports above this LED are enabled.
	Off	The two ports above this LED are not enabled.
(port)	Green	The port is connected with a transceiver or other connector.
	Off	The port is not connected.

## Fan Module LEDs

The fan module status LED is located on the front of the module.

LED	Color	Status
Status	Green	The fan module is operational.
	Red	The fan module is not operational (fan is probably not functional).
	Off	Fan module is not receiving power.

## Power Supply LEDs

The power supply LEDs are located on the left right portion of the power supply. Combinations of states indicated by the Okay and Fault LEDs indicate the status for the module as shown in the following table.

OK LED	FAIL or FAIL/ID LED	Status
Green	Off	Power supply is on and outputting power to the switch.
Flashing green	Off	Power supply is connected to a power source but not outputting power to the switch. The power supply may not be properly installed in the chassis.
Off	Off	Either all the installed power supplies are not receiving power or an uninstalled power supply is not receiving power.

OK LED	FAIL or FAIL/ID LED	Status
Off	Flashing amber	Power supply is operating but a warning condition has occurred—possibly one of the following conditions: <ul style="list-style-type: none"> <li>• High temperature</li> <li>• High power</li> <li>• Slow power supply fan</li> <li>• Low voltage</li> <li>• Power supply is installed in the chassis but was disconnected from the power source.</li> </ul>
Off	Flashing amber (10 seconds) then amber	Power supply is installed without a connection to a power source.
Off	Amber	Power supply failure—possibly one of the following conditions: <ul style="list-style-type: none"> <li>• Over voltage</li> <li>• Over current</li> <li>• Over temperature</li> <li>• Power supply fan failure</li> </ul>





# APPENDIX **D**

## Additional Kits

- [Rack Mount Kit NXK-ACC-KIT2-2RU](#), on page 55

### Rack Mount Kit NXK-ACC-KIT2-2RU

The following table lists and illustrates the contents for the 2-RU rack-mount kit (NXK-ACC-KIT2-2RU).

Illustration	Description	Quantity
	Rack-mount kit <ul style="list-style-type: none"> <li>• Slider bracket (2)</li> <li>• Slider rails (2)</li> <li>• M4 x 7 mm mounting screws (12)</li> </ul>	1
	Ground lug kit <ul style="list-style-type: none"> <li>• Two-hole lug (1)</li> <li>• M4 x 8-mm Phillips pan-head screws (2)</li> </ul>	1
Not applicable	EAC Compliance document	1
Not applicable	Hazardous substances list for customers in China	1

The following table lists and illustrates the console cable (CAB-CONSOLE-RJ45) that can be ordered.

Illustration	Description	Quantity
	Console cable with DB-9F and RJ-45F connectors	1

