



Cisco Nexus 9236C NX-OS Mode Switch Hardware Installation Guide

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Audience

This publication is for hardware installers and network administrators who install, configure, and maintain Cisco Nexus switches.

Documentation Conventions

Command descriptions use the following conventions:

Convention	Description
bold	Bold text indicates the commands and keywords that you enter literally as shown.
<i>Italic</i>	Italic text indicates arguments for which the user supplies the values.
[x]	Square brackets enclose an optional element (keyword or argument).
[x y]	Square brackets enclosing keywords or arguments separated by a vertical bar indicate an optional choice.
{x y}	Braces enclosing keywords or arguments separated by a vertical bar indicate a required choice.

Convention	Description
[x {y z}]	Nested set of square brackets or braces indicate optional or required choices within optional or required elements. Braces and a vertical bar within square brackets indicate a required choice within an optional element.
<i>variable</i>	Indicates a variable for which you supply values, in context where italics cannot be used.
string	A nonquoted set of characters. Do not use quotation marks around the string or the string will include the quotation marks.

Examples use the following conventions:

Convention	Description
<code>screen font</code>	Terminal sessions and information the switch displays are in screen font.
boldface screen font	Information you must enter is in boldface screen font.
<i>italic screen font</i>	Arguments for which you supply values are in italic screen font.
< >	Nonprinting characters, such as passwords, are in angle brackets.
[]	Default responses to system prompts are in square brackets.
!, #	An exclamation point (!) or a pound sign (#) at the beginning of a line of code indicates a comment line.

Related Documentation for Cisco Nexus 9000 Series NX-OS Software

The entire Cisco NX-OS 9000 Series documentation set is available at the following URL:

https://www.cisco.com/en/US/products/ps13386/tsd_products_support_series_home.html

Release Notes

The release notes are available at the following URL:

https://www.cisco.com/en/US/products/ps13386/prod_release_notes_list.html

Configuration Guides

These guides are available at the following URL:

https://www.cisco.com/en/US/products/ps13386/products_installation_and_configuration_guides_list.html

The documents in this category include:

- *Cisco Nexus 2000 Series NX-OS Fabric Extender Software Configuration Guide for Cisco Nexus 9000 Series Switches*
- *Cisco Nexus 9000 Series NX-OS Fundamentals Configuration Guide*
- *Cisco Nexus 9000 Series NX-OS High Availability and Redundancy Guide*
- *Cisco Nexus 9000 Series NX-OS Interfaces Configuration Guide*
- *Cisco Nexus 9000 Series NX-OS Layer 2 Switching Configuration Guide*
- *Cisco Nexus 9000 Series NX-OS Multicast Routing Configuration Guide*
- *Cisco Nexus 9000 Series NX-OS Quality of Service Configuration Guide*
- *Cisco Nexus 9000 Series NX-OS Security Configuration Guide*
- *Cisco Nexus 9000 Series NX-OS System Management Configuration Guide*
- *Cisco Nexus 9000 Series NX-OS Unicast Routing Configuration Guide*
- *Cisco Nexus 9000 Series NX-OS Verified Scalability Guide*
- *Cisco Nexus 9000 Series NX-OS VXLAN Configuration Guide*

Other Software Documents

- *Cisco Nexus 7000 Series and 9000 Series NX-OS MIB Quick Reference*
- *Cisco Nexus 9000 Series NX-OS Programmability Guide*
- *Cisco Nexus 9000 Series NX-OS Software Upgrade and Downgrade Guide*
- *Cisco Nexus 9000 Series NX-OS System Messages Reference*
- *Cisco Nexus 9000 Series NX-OS Troubleshooting Guide*
- *Cisco NX-OS Licensing Guide*
- *Cisco NX-OS XML Interface User Guide*

Hardware Documents

- *Cisco Nexus 3000 Series Hardware Installation Guide*
- *Cisco Nexus 92160YC-X NX-OS Mode Switch Hardware Installation Guide*
- *Cisco Nexus 92300YC NX-OS Mode Switch Hardware Installation Guide*
- *Cisco Nexus 92304QC NX-OS Mode Switch Hardware Installation Guide*
- *Cisco Nexus 9236C NX-OS Mode Switch Hardware Installation Guide*
- *Cisco Nexus 9272Q NX-OS Mode Switch Hardware Installation Guide*
- *Cisco Nexus 93108TC-EX NX-OS Mode Switch Hardware Installation Guide*
- *Cisco Nexus 93120TX NX-OS Mode Switch Hardware Installation Guide*
- *Cisco Nexus 93128TX NX-OS Mode Switch Hardware Installation Guide*

- *Cisco Nexus 93180LC-EX NX-OS Mode Switch Hardware Installation Guide*
- *Cisco Nexus 93180YC-EX NX-OS Mode Switch Hardware Installation Guide*
- *Cisco Nexus 9332PQ NX-OS-Mode Switch Hardware Installation Guide*
- *Cisco Nexus 9372PX and 9372PX-E NX-OS Mode Switches Hardware Installation Guide*
- *Cisco Nexus 9372TX and 9372TX-E NX-OS Mode Switches Hardware Installation Guide*
- *Cisco Nexus 9396PX NX-OS Mode Switch Hardware Installation Guide*
- *Cisco Nexus 9396TX NX-OS Mode Switch Hardware Installation Guide*
- *Cisco Nexus 9504 NX-OS Mode Switch Hardware Installation Guide*
- *Cisco Nexus 9508 NX-OS Mode Switch Hardware Installation Guide*
- *Cisco Nexus 9516 NX-OS Mode Switch Hardware Installation Guide*
- *Regulatory, Compliance, and Safety Information for the Cisco Nexus 3000 and 9000 Series*

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To provide technical feedback on this document, or to report an error or omission, please send your comments to nexus9k-docfeedback@cisco.com. We appreciate your feedback.

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For information on obtaining documentation, using the Cisco Bug Search Tool (BST), submitting a service request, and gathering additional information, see *What's New in Cisco Product Documentation*, at: <https://www.cisco.com/warp/public/687/Directory/DirTAC.shtml>.

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Overview

- [Overview, page 1](#)

Overview

The Cisco Nexus 9236C switch (N9K-C9236C) is a 1 rack unit (RU) switch that has the following ports:

- 36 100-Gigabit QSFP28 interface ports that support 100-, 50-, 40-, 25-, 10- and 1-Gigabit speeds. You can use the following adapters with these ports:
 - CVR-2QSFP28-8SFP which provides eight SFP/SFP+/SFP28 ports for each vertical pair of ports on the switch. The top four SFP/SFP+/SFP28 ports connect to the upper QSFP28 port of the switch pair, and the bottom SFP/SFP+/SFP28 ports connect to the lower QSFP28 port.
 - CVR-QSFP-SFP10G which provides an SFP/SFP+ port for one QSFP/QSFP28 port on the switch.

**Note**

These ports also support breakout cables with four 10-Gigabit SFP+ transceivers (such as the QSFP-4X10G-AOCxM and QSFP-4SFP10G-CUxM cables).

- 1 100/1000 management port
- 1 console port
- 2 software-defined ports
- 1 USB port for saving or loading switch configurations

The chassis for this switch includes the following user-replaceable components:

- Fan modules (four) with the following airflow choices:
 - Port-side intake fan module with burgundy coloring (NXA-FAN-30CFM-B)
 - Port-side exhaust fan module with blue coloring (NXA-FAN-30CFM-F)
- Power supply modules (two—one for operations and one for redundancy [n+1]) with the following choices:

- 650-W port-side intake AC power supply with burgundy coloring (NXA-PAC-650W-PI)
- 650-W port-side exhaust AC power supply with blue coloring (NXA-PAC-650W-PE)
- 1200-W HVAC/HVDC dual-direction airflow power supply with white coloring (N9K-PUV-1200W)
- 930-W port-side intake DC power supply with green coloring (UCSC-PSU-930WDC)
- 930-W port-side exhaust DC power supply with gray coloring (UCS-PSU-6332-DC)

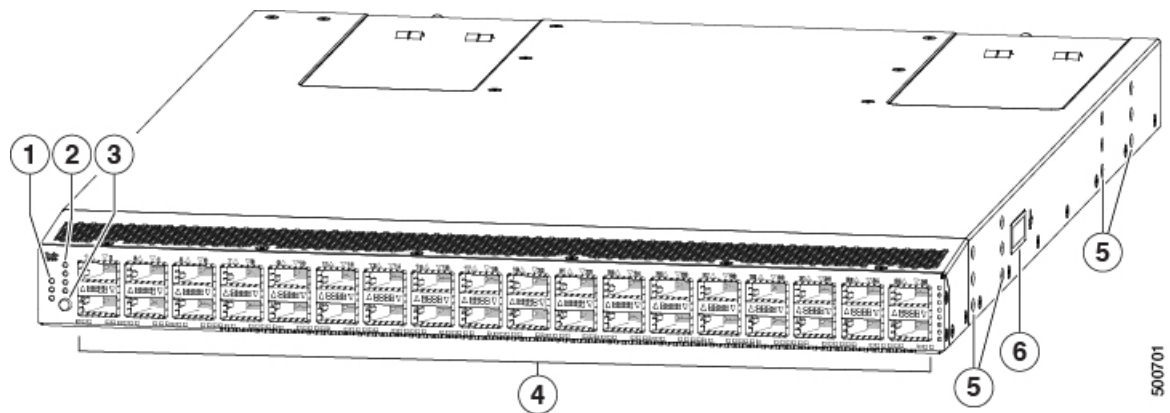
**Note**

Both power supplies should be the same type. Do not mix AC, DC, or HVAC/HVDC power supplies.

**Note**

All fan modules and power supplies must use the same airflow direction during operations. If you are using the 1200-W HVAC/HVDC power supplies, those power supplies automatically use the same airflow direction as used by the other modules in the switch.

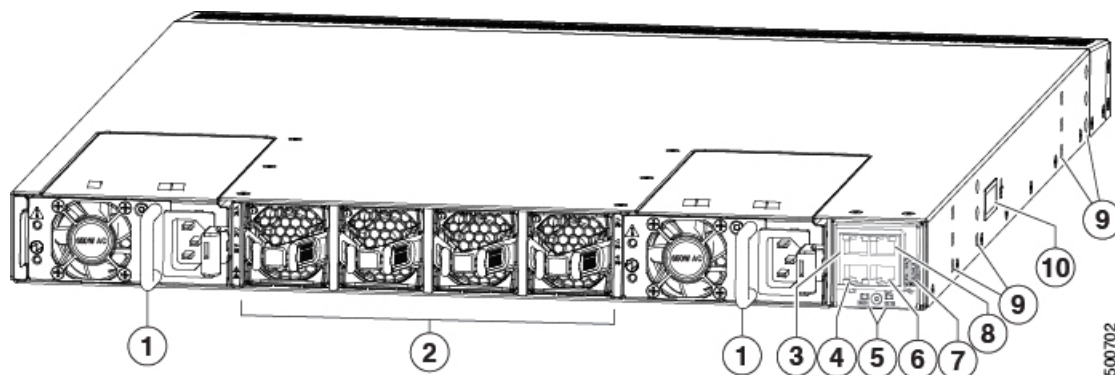
The following figure shows the switch features on the port side of the chassis.



1	Beacon (BCN), Status (STS), and Environment (ENV) LEDs	4	36 100-Gigabit QSFP+/QSFP28 ports
2	Lane link status LEDs for 4x10-Gigabit port configuration (1 LED lit to show the lane being checked or all LEDs off when all 4 lanes are being checked)	5	Screw holes (6) for attaching a mounting bracket
3	Lane shift button	6	Grounding pad

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	Power supply modules (1 or 2) (AC power supplies shown) with slots numbered 1 (left) and 2 (right)	6	Console port (1)
2	Fan modules (4) with slots numbered from 1 (left) to 4 (right)	7	USB port (1)
3	L1 port (software defined)	8	Management port (RJ-45)
4	L2 port (software defined)	9	Screw holes (6) for attaching a mounting bracket
5	Beacon (BCN) and Status (STS) LEDs	10	Grounding pad

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 (DC power supply modules have green coloring). For port-side exhaust airflow, the fan and AC power supplies have blue coloring (DC power supply modules have gray coloring). You can also order the 1200-W HVAC/HVDC power supply which has dual-direction airflow with white coloring. Dual-direction airflow modules automatically use the airflow direction of the other modules installed in the switch.

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.

**Note**

All of the fan and power supply modules must have the same direction of airflow. Otherwise, the switch can overheat and shut down. If you are installing a dual-direction power supply, that module will automatically use the same airflow direction as the other modules in the switch.

**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.



Preparing the Site

- [Temperature Requirements, page 5](#)
- [Humidity Requirements, page 5](#)
- [Altitude Requirements, page 6](#)
- [Dust and Particulate Requirements, page 6](#)
- [Minimizing Electromagnetic and Radio Frequency Interference, page 6](#)
- [Shock and Vibration Requirements, page 7](#)
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- [Airflow Requirements, page 8](#)
- [Rack and Cabinet Requirements, page 9](#)
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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

High humidity can cause moisture to enter the switch. Moisture can cause corrosion of internal components and degradation of properties such as electrical resistance, thermal conductivity, physical strength, and size. The switch is rated to operate at 8- to 80-percent relative humidity, with a humidity gradation of 10 percent per hour. For nonoperating conditions, the switch can withstand from 5- to 95-percent relative humidity.

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, you should use a dehumidifier to maintain the humidity within an acceptable range.

Altitude Requirements

This switch is rated to operate at altitudes from 0 to 13,123 feet (0 to 4,000 meters). If you operate this switch at a higher altitude (low pressure), the efficiency of forced and convection cooling is reduced and can result in electrical problems that are related to arcing and corona effects. This condition can also cause sealed components with internal pressure, such as electrolytic capacitors, to fail or to perform at a reduced efficiency.

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. A clean operating environment can greatly reduce the negative effects of dust and other particles, which act as insulators and interfere with the mechanical components in the switch.

In addition to regular cleaning, 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, operating near the switch. 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 can be 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 between the field and 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.

**Note**

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

The wiring is unlikely to emit radio interference if you use 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 caused by lightning or other high-energy phenomena can easily couple enough energy into unshielded conductors to destroy electronic switches. You might 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 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 you properly install the chassis in a grounded rack, the switch is grounded because it has a metal-to-metal 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 (we recommend 6-AWG wire for U.S. installations) connected 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.

Planning for Power Requirements

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

- Two 650-W AC power supplies
- Two 1200-W HVAC/HVDC power supplies
- Two 930-W DC power supplies

**Note**

Both power supplies must be the same type. Do not mix AC, DC, and HVAC/HVDC power supplies in the same chassis.

**Note**

For $n+1$ redundancy, you can use one or two power sources for the two power supplies. For $n+n$ redundancy, you must use two power sources and connect each power supply to a separate power source.

The power supplies are rated to output up to 650 W (AC power supplies), up to 1200 W (HVAC/HVDC power supplies), or up to 930 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 275 W of power input from the power source, but you must provision as much as 640 W of power input from the power source to cover peak demand.

**Note**

Some of the power supply modules have Underwriter Labs (UL) rating capabilities that exceed the switch requirements. When calculating power requirements, use the switch requirements to determine the amount of power required for the power supplies.

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

**Note**

For the power cables to use with the power supplies, see [Power Cable Specifications](#), on page 43.

Airflow Requirements

The switch is designed to be positioned with its ports in either the front or the rear of the rack depending on your cabling and maintenance requirements. Depending on which side of the switch faces the cold aisle, 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—Coolant 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—Coolant 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.
- Dual-direction airflow—Airflow direction is determined by the airflow direction of the installed fan modules.

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.
- Burgundy coloring indicates port-side intake airflow.
- White coloring on HVAC/HVDC power supplies indicates dual-direction airflow.

- Gray coloring on DC power supplies indicates port-side exhaust airflow.
- Green coloring on DC power supplies indicates port-side intake airflow.

**Note**

To prevent the switch from overheating and shutting down, you must position the air intake for the switch in a cold aisle, and all of the fan and power supply modules must have the same direction of airflow (even if their coloring is different). If you must change the airflow direction for the switch, you must shutdown the switch before changing the modules.

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).
- Required clearances between the chassis and the edges of its rack or the interior of its cabinet are as follows:
 - 4.5 inches (11.4 cm) between the front of the chassis and the interior of the cabinet (required for cabling).
 - 3.0 inches (7.6 cm) between the rear of the chassis and the interior of the cabinet (required for airflow in the cabinet if used).
 - No clearance is required between the chassis and the sides of the rack or cabinet (no side airflow).

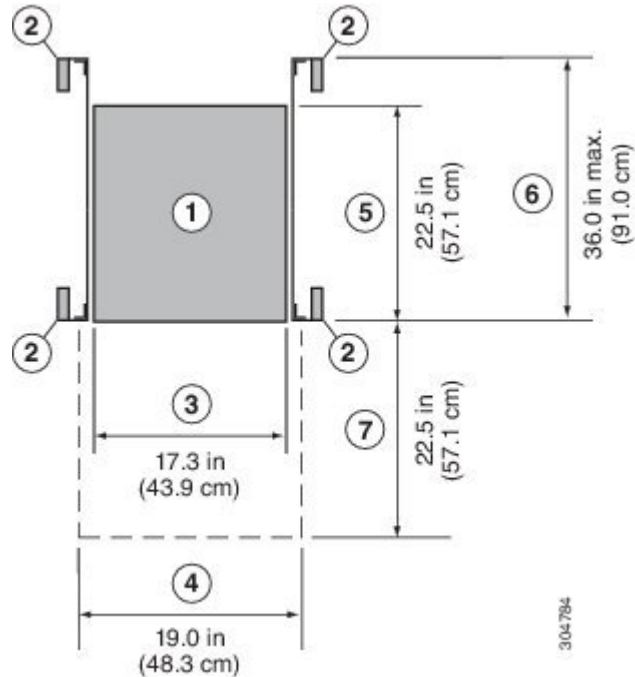
Additionally, you must have power receptacles located within reach of the power cords used with the switch.

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

Stability hazard. The rack stabilizing mechanism must be in place, or the rack must be bolted to the floor before you slide the unit out for servicing. Failure to stabilize the rack can cause the rack to tip over.

Clearance Requirements

You must provide the chassis with adequate clearance between the chassis and any other rack, device, or structure so that you can properly install the chassis, route cables, provide airflow, and maintain the switch. For the clearances required for an installation of this chassis in a four-post rack, see the following figure.



1	Chassis	5	Depth of the chassis
2	Vertical rack-mount posts and rails	6	Maximum extension of the bottom-support rails
3	Chassis width	7	Depth of the front clearance area (this equals the depth of the chassis)
4	Width of the front clearance area (this equals the width of the chassis with two rack-mount brackets attached to it)		


Note

Both the front and rear of the chassis must be open to both aisles for airflow.



Installing the Switch Chassis

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- [Installation Options with Racks and Cabinets, page 12](#)
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- [Installation Guidelines, page 12](#)
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Safety

Before you install, operate, or service the switch, see the *Regulatory, Compliance, and Safety Information for the Cisco Nexus 3000 and 9000 Series* for important Safety Information.



Warning

Statement 1071—Warning Definition

IMPORTANT SAFETY INSTRUCTIONS

This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. Use the statement number provided at the end of each warning to locate its translation in the translated safety warnings that accompanied this device.

SAVE THESE INSTRUCTIONS



Warning

Statement 1017—Restricted Area

This unit is intended for installation in restricted access areas. A restricted access area can be accessed only through the use of a special tool, lock and key, or other means of security.

**Warning****Statement 1030—Equipment Installation**

Only trained and qualified personnel should be allowed to install, replace, or service this equipment.

Installation Options with Racks and Cabinets

You can install the switch in the following types of racks using the rack-mount kit shipped with the switch:

- Open EIA rack
- Perforated EIA cabinet

The rack or cabinet that you use must meet the requirements listed in [General Requirements for Cabinets and Racks](#), on page 37.

The rack-mount kit enables you to install the switch into racks of varying depths. You can use the rack-mount kit parts to position the switch with easy access to either the port connections end of the chassis or the end of the chassis with the fan and power supply modules. For instructions on how to install the rack-mount kit, see the [Installing the Switch](#), on page 14.

Airflow Considerations

The switch comes with fan and power supply modules that have either port-side intake or port-side exhaust airflow for cooling the switch. If you are positioning the port end of the switch in a cold aisle, make sure that the switch has port-side intake fan modules with burgundy coloring. If you are positioning the fan and power supply modules in a cold aisle, make sure that the switch has port-side exhaust fan modules with blue colorings. All fan modules must have the same direction of airflow.

Installation Guidelines

When installing the switch, follow these guidelines:

- Record equipment and installation information in the forms presented in [Chassis and Module Information](#) as you install and configure the switch.
- Ensure that there is adequate clearance space around the switch to allow for servicing the switch and for adequate airflow.
- Ensure that you are positioning the switch in a rack so that it takes in cold air from the cold aisle and exhausts air to the hot aisle. If there is blue coloring on the fan modules, the switch is configured for port-side exhaust airflow and you must position the module side of the switch in a cold aisle. If there is burgundy coloring on the fan modules, the switch is configured for port-side intake airflow and you must position the port side of the switch in a cold aisle.
- Ensure that the chassis can be adequately grounded. If the switch is not mounted in a grounded rack, we recommend connecting both the system ground on the chassis directly to an earth ground.
- Ensure that the site power meets the power requirements for the switch. If available, you can use an uninterruptible power supply (UPS) to protect against power failures.

**Caution**

Avoid UPS types that use ferroresonant technology. These UPS types can become unstable with the switch, which can have substantial current draw fluctuations because of fluctuating data traffic patterns.

- Ensure that circuits are sized according to local and national codes. Typically, this often requires one or both of the following:
 - AC power supplies typically require at least a 15-A or 20-A AC circuit, 100 to 240 VAC, and a frequency of 50 to 60 Hz.
 - HVAC/HVDC power supplies require the following:
 - HVAC input voltage range of 230 to 277 VAC with a frequency of 50 to 60 Hz
 - HVDC input voltage range of -240 to -380 VDC
 - DC power supplies require the following:
 - DC input voltage range of -48 to -60 VDC nominal (self-ranging, -40 to -60 VDC)
 - DC line input current (steady state) of 23 A peak at -48 VDC

**Caution**

To prevent loss of input power, ensure the total maximum loads on the circuits supplying power to the switch are within the current ratings for the wiring and breakers.

Unpacking and Inspecting the Switch

Before you install the switch, be sure to unpack and inspect the switch for damage or missing components. If anything is missing or damaged, contact your customer service representative immediately.

**Tip**

Keep the shipping container in case the chassis requires shipping at a later time.

Before You Begin

Before you unpack the switch and before you handle any switch components, be sure that you are wearing a grounded electrostatic discharge (ESD) strap. To ground the strap, attach it directly to an earth ground or to a grounded rack or grounded chassis (there must be a metal-to-metal connection to the earth ground).

Step 1

Compare the shipment to the equipment list provided by your customer service representative and verify that you have received all items, including the following:

- Accessory Kit

Note For the contents of these kits, see the [Additional Kits](#).

Step 2 Check for damage and report any discrepancies or damage to your customer service representative. Have the following information ready:

- Invoice number of shipper (see packing slip)
- Model and serial number of the damaged unit
- Description of damage
- Effect of damage on the installation

Step 3 Check to be sure that each of the power supply and the fan tray modules have the expected direction of airflow as follows:

- Port-side intake airflow modules
 - Red (fan modules and AC power supplies)
 - Green (DC power supplies)
- Port-side exhaust airflow modules
 - Blue (fan modules and AC power supplies)
 - Gray (DC power supplies)
- Dual-direction airflow power-supply modules
 - White (see the color of the fan modules to determine the airflow direction used)

Note All power supplies and fan modules must have the same direction of airflow.

Installing the Switch

To install the switch, you must attach front and rear mounting brackets to the switch, install slider rails on the rear of the rack, slide the switch onto the slider rails, and secure the switch to the front of the rack. Typically, the front of the rack is the side easiest to access for maintenance.



Note You must supply the eight 10-32 or 12-24 screws required to mount the slider rails and switch to the rack.

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:
 - Front rack-mount brackets (2)

- Rear rack-mount brackets (2)
 - Slider rails (2)
 - M4 x 0.7 x 8-mm Phillips countersink screws (12)
- The rack is installed and secured to its location.

Step 1

Install two front-mount brackets to the switch as follows:

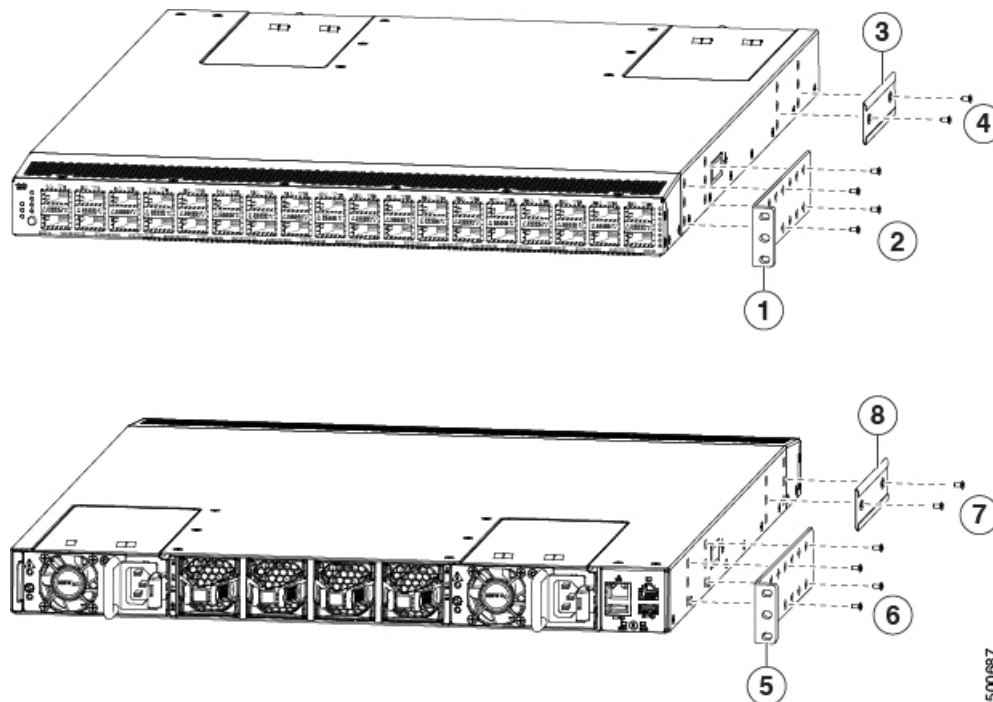
a) Determine which end of the chassis is to be located in the cold aisle as follows:

- If the switch has port-side intake modules (fan modules with burgundy coloring), position the switch so that its ports will be in the cold aisle.
- If the switch has port-side exhaust modules (fan modules with blue coloring), position the switch so that its fan and power supply modules will be in the cold aisle.

Note If the power supply modules have white coloring, look at the fan modules to determine the airflow direction for the switch.

b) Position a front-mount bracket so that four of its screw holes are aligned to the screw holes on the side of the chassis.

Note You can align any four of the holes in the front rack-mount bracket to four of the six screw holes on the side of the chassis (see the two ways to mount these brackets on a typical chassis, in following figure). The holes that you use depend on the requirements of your rack and the amount of clearance required for interface cables (3 inches [7.6 mm] minimum) and module handles (1 inch [2.5 mm] minimum).



500687

1	Front rack-mount bracket aligned to the port end of the chassis	5	Front rack-mount bracket aligned to the module end of the chassis
2	Four M4 screws used to attach the bracket to the chassis	6	Four M4 screws used to attach the bracket to the chassis
3	Rear rack-mount guide aligned to the module end of the chassis	7	Two M4 screws used to attach the bracket to the chassis
4	Two M4 screws used to attach the bracket to the chassis	8	Rear rack-mount guide aligned to the port end of the chassis

- c) Secure the front-mount bracket to the chassis using four M4 screws and tighten each screw to 12 in-lb (1.36 N·m) of torque.
- d) Repeat Step 1 for the other front rack-mount bracket on the other side of the switch and be sure to position that bracket the same distance from the front of the switch.

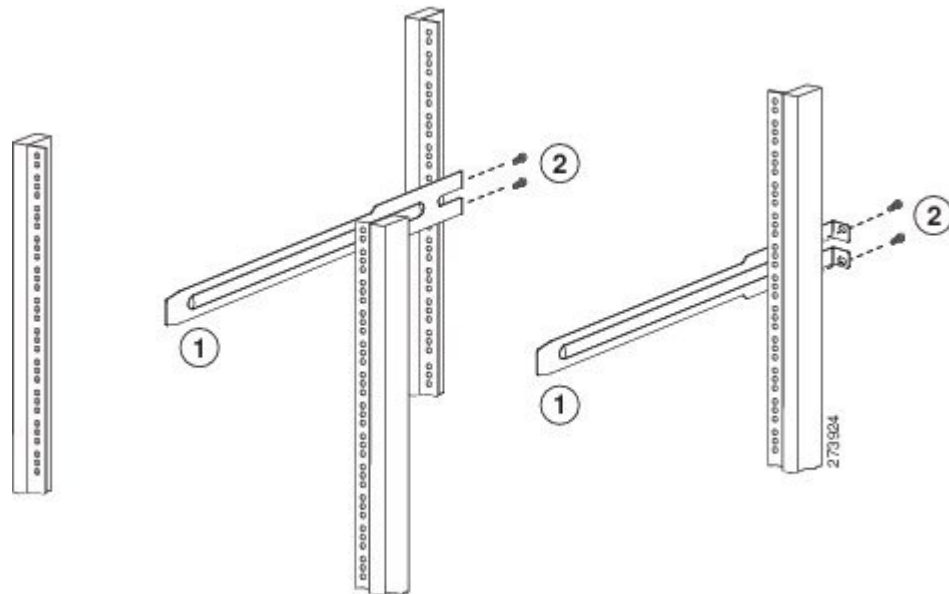
Step 2 Install the two rear rack-mount brackets on the chassis as follows:

- a) Align the two screw holes on a rear rack-mount bracket to the middle two screw holes in the remaining six screw holes on a side of the chassis. If you are aligning the guide to holes that are near the port connections end of the chassis, see Callout 3 in the previous figure. Otherwise, see Callout 7 in the previous figure.
- b) Attach the guide to the chassis using two M4 screws (see Callout 4 or 8 in the previous figure). Tighten the screws to 12 in-lb (1.36 N·m) of torque.
- c) Repeat Step 2 for the other rear rack-mount bracket on the other side of the switch.

Step 3 If you are not installing the chassis into a grounded rack, you must attach a customer-supplied grounding wire to the chassis as explained in [Grounding the Chassis](#), on page 19. If you are installing the chassis into a grounded rack, you can skip this step.

Step 4 Install the slider rails on the rack or cabinet as follows:

- a) Determine which two posts of the rack or cabinet you should use for the slider rails. Of the four vertical posts in the rack or cabinet, two will be used for the front mount brackets attached to the easiest accessed end of the chassis, and the other two posts will have the slider rails.
- b) Position a slider rail at the desired level on the back side of the rack and use two 12-24 screws or two 10-32 screws, depending on the rack thread type, to attach the rails to the rack (see the following figure). Tighten 12-24 screws to 30 in-lb (3.39 N·m) of torque and tighten 10-32 screws to 20 in-lb (2.26 N·m) of torque.



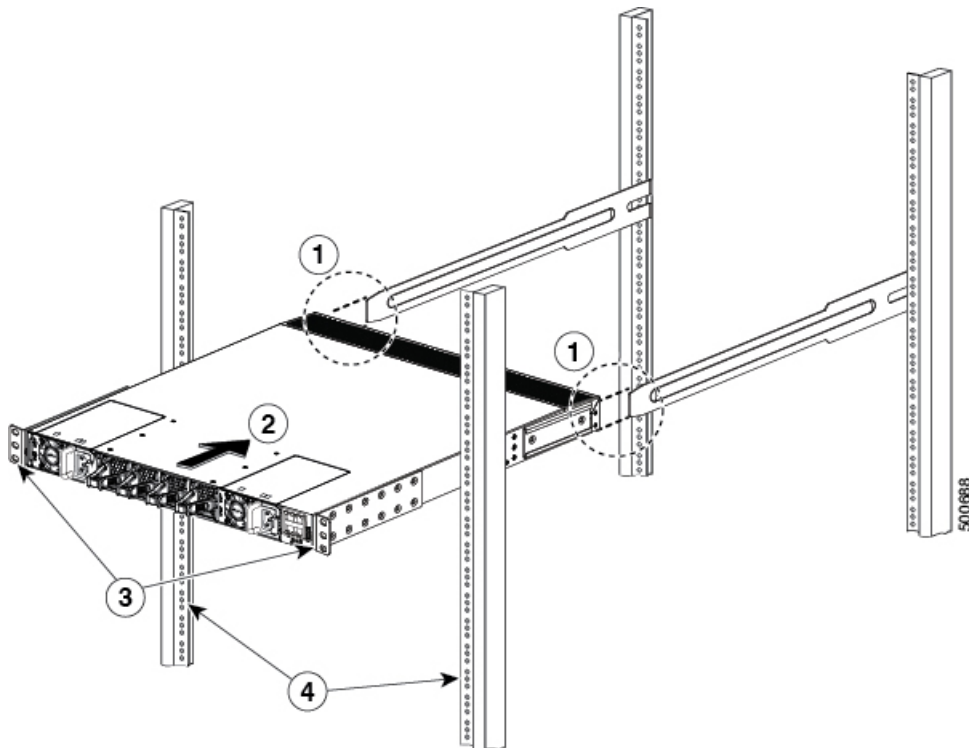
1	Slider rail with screw holes aligned to screw holes in rack	2	Two customer-supplied 12-24 or 10-32 screws used to attach each slider rail to the rack
---	---	---	---

- c) Repeat Step 3 to attach the other slider rail to the other side of the rack.
To make sure that the slider rails are at the same level, you should use a level tool, tape measure, or carefully count the screw holes in the vertical mounting rails.

Step 5

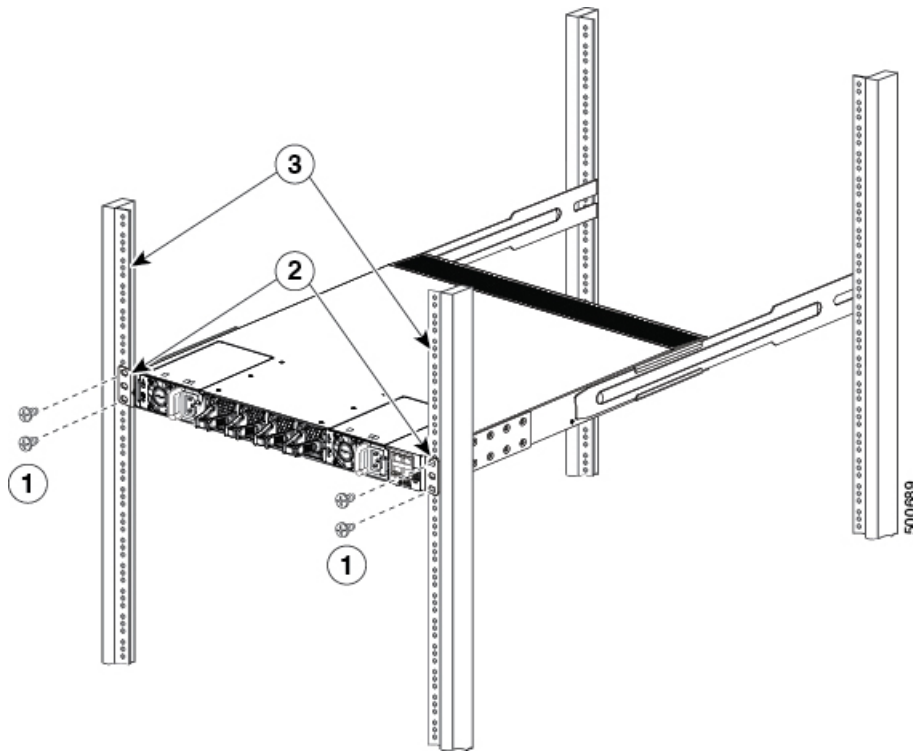
Insert the switch into the rack and attach it as follows:

- a) Holding the switch with both hands, position the two rear rack-mount brackets on the switch between the rack or cabinet posts that do not have slider rails attached to them (see the following figure).



1	Align the two rear rack-mount bracket guides with the slider rails installed in the rack.	3	Front-mount brackets.
2	Slide the rack-mount guides onto the slider rails until the front rack-mount brackets come in contact with the front rack-mount rails.	4	Mounting rails on rack or cabinet posts.

- b) Align the two rear rack-mount guides on either side of the switch with the slider rails installed in the rack. Slide the rack-mount guides onto the slider rails, and then gently slide the switch all the way into the rack until the front rack-mount brackets come in contact with two rack or cabinet posts.
- c) Holding the chassis level, insert two screws (12-24 or 10-32, depending on the rack type) in each of the two front rack-mount brackets (using a total of four screws) and into the cage nuts or threaded holes in the vertical rack-mounting rails (see the following figure).



1	Fasten the chassis to the front of the rack with two 12-24 or 10-32 screws on each side.	3	Mounting rails on rack or cabinet posts.
2	Front-mount bracket.		

d) Tighten the 10-32 screws to 20 in-lb (2.26 N·m) or tighten the 12-24 screws to 30 in-lb (3.39 N·m).

Step 6

If you attached a grounding wire to the chassis grounding pad, connect the other end of the wire to the facility ground.

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.

You can alternatively ground the chassis (this is required if the rack is not grounded) by attaching a customer-supplied grounding cable to the chassis grounding pad and the facility ground.

**Warning****Statement 1024—Ground Conductor**

This equipment must be grounded. 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**

When installing or replacing the unit, the ground connection must always be made first and disconnected last.

Before You Begin

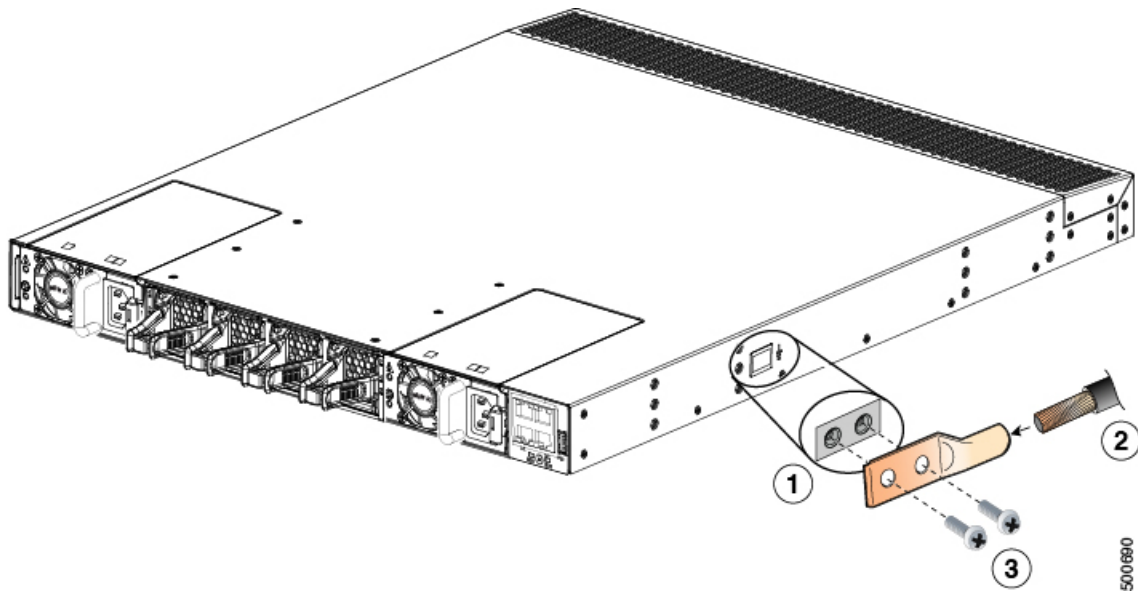
Before you can ground the chassis, you must have a connection to the earth ground for the data center building.

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.

Step 2

Insert the stripped end of the grounding wire into the open end of the grounding lug, and use a crimping tool to crimp the lug to the wire (see Callout 2 in 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 used to secure the grounding lug to the chassis
2	Grounding cable, with 0.75 in. (19 mm) of insulation stripped from one end, 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 Callouts 1 and 3 in the previous figure), and tighten the screws to 11 to 15 in-lb (1.24 to 1.69 N·m) of torque.
- Step 4** After you install the chassis, prepare the other end of the grounding wire and connect it to an appropriate grounding point in your site to ensure an adequate earth ground for the switch.
- Step 5** 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 $n+1$ redundancy, you must connect each of the power supplies to one or two power sources. If you need $n+n$ redundancy, you must connect each power supply in a switch to a different power source.

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.

**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.

- 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.

All of the fan slots must be filled with fan modules and the power supply slots must be filled with the same types of power supplies (do not mix AC and DC power supplies).

-
- Step 1** For each 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 each 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 C14 or LS-25 plug in a receptacle for the HVAC power source.
- When connecting to an HVDC power source, do the following:
 - 1 Verify that the power is turned off at a circuit breaker for the power source terminals.
 - 2 Remove the nuts from each of the terminal posts for the power supply.
 - 3 Place the power cable negative-wire terminal ring on the negative terminal for the power source and secure them with a terminal nut.
 - 4 Place the power cable positive-wire terminal ring on the positive terminal for the power source and secure them with a terminal nut.
 - 5 Place the power cable ground-wire terminal ring on the ground 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 each 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.

Step 8 Complete the worksheets provided in [Site Preparation and Maintenance Records](#) for future reference.

Note

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.



CHAPTER

4

Connecting the Switch to the Network

- [Setting Up the Management Interface, page 23](#)
- [Connecting to Host Servers, page 23](#)
- [Guidelines for Connecting Ports, page 24](#)
- [Maintaining Transceivers and Optical Cables, page 26](#)

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.

Step 1

Connect the RJ-45, UTP cable to the MGMT ETH port on the switch.

Step 2

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

What to Do Next

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

Connecting to Host Servers

The switch has 36 ports that connect to host servers. You can configure each of these ports for 100-, 40-, 25-, 10-, or 1-Gigabit speeds as follows:

- For 100 Gigabits per second, use QSFP28 transceivers on both ends of each optical cable.
- For 40 Gigabits per second, use QSFP+ transceivers on both ends of each optical cable.

- For 25 Gigabits per second, you can do either of the following:
 - Use a breakout cable with a QSFP28 transceiver on one end and four SFP25 transceivers on the other ends. To configure one or more ports to use this cable, use the **interface breakout module module_number port low_port_number[-high_port_number] map 25g-4x** command. For the Cisco Nexus 9236C switch, use 1 for the *module_number*. If you are configuring only one port, use the port number in place of *low_port_number*. If you are configuring a range of ports, specify the port numbers from low to high, such as **port 2-15**.



Note You can use a breakout cable that is up to 9.8 feet (3 meters) in length.

- Use a CVR-2QSFP28-8SFP adapter for each 100-Gigabit port to operate at 25-Gigabits and configure the port or range of ports to operate at 25-Gigabits by using the **interface breakout module module_number port low_port_number[-high_port_number] map 25g** command. For the Cisco Nexus 9236C switch, use 1 for the *module_number*. If you are configuring only one port, use the port number in place of *low_port_number*. If you are configuring a range of ports, specify the port numbers from low to high, such as **port 2-15**.
- For 10-Gigabit connectivity, you can do one of the following:
 - Use a QSFP-to-SFP adapter, such as the CVR-QSFP-SFP10G adapter, so that you can connect SFP+ or SFP transceivers to the QSFP28/QSFP+ ports. The 10-Gigabit speed is automatically set up through the adapter connection.
 - Use a breakout cable with a QSFP+ transceiver on the switch end and four SFP+ transceivers on the other cable ends. To configure one or more ports to use this cable, use the **interface breakout module module_number port low_port_number[-high_port_number] map 10g-4x** command. For the Cisco Nexus 9236C switch, use 1 for the *module_number*. If you are configuring only one port, use the port number in place of *low_port_number*. If you are configuring a range of ports, specify the port numbers from low to high, such as **port 2-15**.

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

You can use 100-Gigabit Quad Small Form Factor Pluggable 28 (QSFP28) or 40-Gigabit QSFP+ transceivers for connections to other network devices using speeds of 100, 40, 25, or 10 Gigabits per second (you can use breakout cables for 25- and 10-Gigabit connections).

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

To prevent damage to the fiber-optic cables that can separate from their cables, we recommend that you 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. Attenuation (loss of light) is increased by contamination 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 and never force them all the way into the slots. If the transceiver stops part way into the slot, it might be upside down and you should remove the transceiver before turning it over and reinstalling it. If positioned correctly, the transceiver will slide all the way into the slot and click 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 1053—Class 1M Laser Radiation**

Class 1M laser radiation when open. Do not view directly with optical instruments.

**Warning****Statement 1055—Class I and Class 1M Laser**

Class I (CDRH) and Class 1M (IEC) 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. Attenuation (loss of light) is increased by contamination 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 your site's fiber-optic connection cleaning procedures.
- 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.



Replacing Modules

- [Replacing a Fan Module During Operations, page 27](#)
- [Replacing a Power Supply Module, page 28](#)

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 both of the following conditions exist:

- 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 both of 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) 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) 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.
- c) 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.

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.



Note

If you need to change the airflow direction of the switch modules, you must shut down the switch before changing all of the modules to modules using the other airflow direction.

You can replace a power supply with another supported power supply that has the same power source type (AC, DC, HVAC, or HVDC) and the same wattage rating 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. The following list describes the power supplies supported by this switch.

- NXA-PAC-650W-PE (650-W, port-side exhaust (blue latch) power supply requiring an AC power source)
- NXA-PAC-650W-PI (650-W, port-side intake (burgundy latch) power supply requiring an AC power source)
- N9K-PUV-1200W (1200-W, dual-direction (white latch) high-voltage AC/DC power supply requiring a high-voltage AC or DC power source)
- UCS-PSU-6332-DC (930-W, port-side exhaust (blue latch) power supply requiring DC power source)
- UCSC-PSU-930WDC (930-W, port-side intake (burgundy latch) power supply requiring DC power source)

Removing an AC Power Supply

To remove an AC power supply, you must first disconnect the power cable and then remove the module from the chassis.

Before You Begin

- To replace a power supply during operations, you must have a functioning power supply providing power to the switch while you replace the other power supply. If there is only one power supply installed in the switch and you need to replace it, install the new power supply in the open slot and power it up before removing the original power supply.
- Ensure that the chassis is grounded. For grounding instructions, see [Grounding the Chassis](#), on page 19.

Step 1

Pull the power cord out from the power receptacle on the power supply to be removed and verify that the  LED turns off.

Note The  LED might be on and amber colored to indicate that the input power has been disconnected.

Note If you need to remove an Anderson's Saf-D-Grid power cable connector from a high-voltage power supply, press the tab at the top of the connector and pull the connector out of the power supply.

Step 2

Remove the power supply from the chassis by pushing and holding its thumb latch to the left and pulling the power supply part way out of the chassis.

Step 3

Place your other hand under the power supply to support it while you slide it out of the chassis. Either place the power supply on an antistatic surface or pack it in its packing materials.

Step 4

If the power supply slot is to remain empty, install a blank power supply filler panel (part number N2200-P-BLKN).

What to Do Next

You are ready to install the replacement power supply.

Removing an HVAC/HVDC Power Supply

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

To disconnect the power supply from its power cables, you must shut off the power from the power source and then either disconnect a connector for the power cables or release each of three cables from the power supply (requires a standard screw driver).

Step 1

Turn off the circuit breaker for the power feed to the power supply that you are replacing. Be sure that the LEDs turn off on the power supply that you are removing.

- Step 2** Remove the power cable from the power supply by pressing the tab on the top of the Anderson Power SAF-D-Grid connector and pull the cable and connector out of the power supply.
- Step 3** Grasp the power supply handle while pressing the release latch towards the power supply handle.
- Step 4** Place your other hand under the power supply to support it while you slide it out of the chassis.
- Caution** Do not touch the electrical connectors on the back side of the module and prevent anything else from coming into contact with and damaging the connectors.
-

What to Do Next

You are ready to install an HVAC/HVDC power supply in the open slot.

Removing a DC Power Supply

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

To disconnect the power supply from its power cables, you must shut off the power from the power source and then either disconnect a connector for the power cables or release each of three cables from the power supply (requires a standard screw driver).

-
- Step 1** Turn off the circuit breaker for the power feed to the power supply that you are replacing. Be sure that the LEDs turn off on the power supply that you are removing.
- Step 2** Remove the power cable from the power supply by doing the following:
- To remove an orange power cable connector from a 48-V DC power supply, do the following:
 - 1 Push the orange plastic button on the top of the connector block inward toward the power supply.
 - 2 Pull the connector block out of the power supply.
 - To remove an Anderson Power Products Saf-D-Grid power cable connector from a high-voltage power supply, press on the tab at the top of the Saf-D-Grid connector and pull the connector out of the power supply.
- Step 3** Grasp the power supply handle while pressing the release latch towards the power supply handle.
- Step 4** Pull the power supply out of the bay.
-

What to Do Next

You are ready to install a DC power supply in the open slot.

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).


Note

DC power supplies with green coloring have the same port-side intake airflow direction as the power supplies with red coloring, and DC power supplies with gray coloring have the same port-side exhaust airflow direction as the power supplies with blue coloring. HVAC/HVDC power supplies automatically use the same airflow direction as the installed fan modules. 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.

- 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 19.

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 right 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 outlet 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. For information on what the power supply LEDs indicate, see [Power Supply LEDs](#), on page 48.

Installing an HVAC/HVDC Power Supply

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

**Note**

DC power supplies with green coloring have the same port-side intake airflow direction as the power supplies with red coloring, and DC power supplies with gray coloring have the same port-side exhaust airflow direction as the power supplies with blue coloring. HVAC/HVDC power supplies automatically use the same airflow direction as the installed fan modules. 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 19.

-
- 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 right 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. If the electrical cables have not been connected to the electrical connector block, wire them as described in [Wiring a 48 V DC Electrical Connector Block](#), on page 33.
- 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. For information on what the power supply LEDs indicate, see [Power Supply LEDs](#), on page 48.
-

Installing a DC Power Supply

This topic is for installing the 48-V DC power supply into switch chassis. If you need to install a high voltage (HVAC/HVDC) power supply, see [Installing an HVAC/HVDC Power Supply](#), on page 31.

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 19.

-
- 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 right 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.
If the electrical cables have not been connected to the electrical connector block, wire them as described in [Wiring a 48 V DC Electrical Connector Block](#), on page 33.
- 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. For information on what the power supply LEDs indicate, see [Power Supply LEDs](#), on page 48.
-

Wiring a 48 V DC Electrical Connector Block

You must connect the ground, negative, and positive DC power cables to a connector block in order to connect the power cables to a 48 V DC power supply.



Note

The recommended wire gauge is 8 AWG. The minimum wire gauge is 10 AWG.



Warning

Statement 342—Before Connecting to System Power Supply

High leakage current □ earth connection essential before connecting to system power supply.

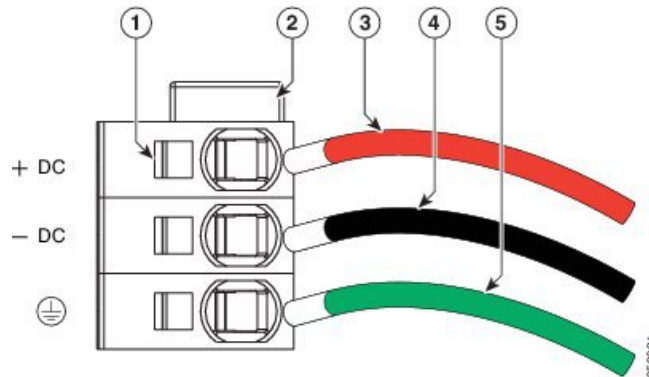
**Warning****Statement 1024—Ground Conductor**

This equipment must be grounded. 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.

Before You Begin

You must turn off the circuit breaker for the DC power cables that you are connecting to prevent electrocution.

- Step 1** Verify that the circuit breaker for the power feed to the replacement power supply is turned off.
- Step 2** Remove the DC power connector block from the power supply by doing the following:
- Push the orange plastic button on the top of the connector block inward toward the power supply.
 - Pull the connector block out of the power supply.
- Step 3** Strip 0.6 inches (15 mm) of insulation off the DC wires that you are using.
- Step 4** Orient the connector as shown in the following figure with the orange plastic button on top.



1	Wire retainer lever	4	-48V (-DC) cable
2	Orange plastic button on top of the connector	5	Grounding cable (8 AWG recommended)
3	-48V Return (+DC) cable		

- Step 5** Use a small screwdriver to depress the spring-loaded wire retainer lever on the lower spring-cage wire connector. Insert your green (ground) wire into the aperture and then release the lever.
- Step 6** Use a small screwdriver to depress the spring-loaded wire retainer lever on the middle spring-cage wire connector. Insert your black (DC negative) wire into the aperture and then release the lever.
- Step 7** Use a small screwdriver to depress the spring-loaded wire retainer lever on the upper spring-cage wire connector. Insert your red (DC positive) wire into the aperture and then release the lever.
- Step 8** Insert the connector block back into the power supply. Make sure that your red (DC positive) wire aligns with the power supply label, "+ DC".
- Step 9** Verify that the other ends of the cables are attached to the DC power source and ground. You are then ready to turn on the DC power source.
-



Rack Specifications

- [Overview of Racks, page 37](#)
- [General Requirements for Cabinets and Racks, page 37](#)
- [Requirements Specific to Standard Open Racks, page 38](#)
- [Requirements Specific to Perforated Cabinets, page 38](#)
- [Cable Management Guidelines, page 38](#)

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



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.



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).

General Requirements for Cabinets and Racks

The cabinet or rack must also meet the following requirements:

- Standard 19-inch (48.3 cm) (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 38.
- The minimum vertical rack space requirement per chassis is one RU (rack unit), equal to 1.75 inches (4.4 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 one rack unit (RU), equal to 1.75 inches (4.4 cm) two rack units (RUs), equal to 3.5 inches (8.8 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.



System Specifications

- [Environmental Specifications, page 39](#)
- [Switch Dimensions, page 39](#)
- [Switch and Module Weights and Quantities, page 40](#)
- [Transceiver and Cable Specifications, page 40](#)
- [Switch Power Input Requirements, page 40](#)
- [Power Specifications, page 41](#)
- [Power Cable Specifications, page 43](#)
- [Regulatory Standards Compliance Specifications, page 45](#)

Environmental Specifications

Environment		Specification
Temperature	Ambient operating temperature	32 to 104°F (0 to 40°C)
	Ambient non operating	–40 to 158°F (–40 to 70°C)
Relative humidity	Operating	8 to 80% with humidity gradation of 10% per hour
	Non operating	5 to 95%
Altitude	Operating	0 to 13,123 feet (0 to 4,000 meters)

Switch Dimensions

Switch	Width	Depth	Height
Cisco Nexus 9236C	17.3 inches (43.9 cm)	22.5 inches (57.1 cm)	1.72 inches (4.4 cm) (1 RU)

Switch and Module Weights and Quantities

Component	Weight per Unit	Quantity
Cisco Nexus 9236C Chassis (N9K-C9236C)	18.2 lb (8.3 kg)	1
Fan Module	—	4
– Port-side exhaust (blue) (NXA-FAN-30CFM-F)	0.92 lb (0.4 kg)	
– Port-side intake (burgundy) (NXA-FAN-30CFM-B)	0.92 lb (0.4 kg)	
Power Supplies	—	2 (1 for operations and 1 for redundancy)
– 650-W AC port-side exhaust (blue) (NXA-PAC-650W-PE)	2.42 lb (1.1 kg)	
– 650-W AC port-side intake (burgundy) (NXA-PAC-650W-PI)	2.42 lb (1.1 kg)	
– 1200-W HVAC/HVDC dual-direction (white) (N9K-PUV-1200W)	2.42 lb (1.1 kg)	
– 930-W DC port-side exhaust (gray) (UCS-PSU-6332-DC)	2.42 lb (1.1 kg)	
– 930-W DC port-side intake (green) (UCSC-PSU-930WDC)	2.42 lb (1.1 kg)	

Transceiver and Cable Specifications

To determine which transceivers, adapters, and cables are supported by this switch, see <https://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 <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 consumed by the switch, and it lists the maximum amount of power that you must provision from the power source as input to the power supply and switch for peak conditions.



Note

Some power supplies might have UL listed 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 listed in the following table.

Switch	Typical Power Consumption (AC or DC)	Maximum Power Consumption (AC or DC)
Cisco Nexus 9236C	275 W	640 W

Power Specifications

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

650-W AC Power Supply Specifications

These specifications apply to the following power supplies:

- NXA-PAC-650W-PE
- NXA-PAC-650W-PI

Characteristic	Specification
AC input voltage	Nominal range: 100 and 240 VAC (Range: 90-132 VAC, 180-264 VAC)
AC input frequency	Nominal range: 50 to 60 Hz (Range: 47-63 Hz)
Maximum AC input current	7.6 A at 100 VAC 3.65 A at 208 VAC
Maximum input volt-amperes	760 A at 100 VAC
Maximum output power per power supply	650 W
Maximum inrush current	33 A (sub-cycle duration)
Maximum hold-up time	12 ms at 650 W
Power supply output voltage	12 VDC
Power supply standby voltage	12 VDC
Efficiency rating	Climate Savers Platinum Efficiency (80Plus Platinum certified)
Form factor	RSP1

1200-W HVAC/HVDC Power Supply Specifications

These specifications apply to the 1200-W HVAC/HVDC (N9K-PUV-1200W) power supplies.

Characteristic	Specification
Input voltage • AC (for 1230 W output) • DC (for 1230 W output)	Nominal (Range) • 200 to 277 VAC • -240 to -380 VDC
AC input frequency	Nominal: 50 to 60 Hz (Range: 47-63 Hz)
Maximum inrush current	35 A (cold turn on); 70 A (hot turn on)
Maximum output Watts • For 200 to 277 VAC • For 192 to 400 VDC	Per power supply • 1230 W • 1230 W
Power supply output voltage • For 200 to 277 VAC • For 192 to 400 VDC	Per power supply • 12 VAC at 100 A • 12 VDC at 100 A
Power supply standby voltage	12 V at 2.5 A
Efficiency rating	Climate Savers Platinum Efficiency (80Plus Platinum certified)
Form factor	RSP1

930-W DC Power Supply (Port-Side Intake) Specifications

These specifications apply to the 930-W DC (UCSC-PSU-930WDC) port-side intake power supplies.

Characteristic	Specification
DC input voltage range	Nominal range: -48 to -60 VDC nominal (Range: -40 to -60 VDC)
Maximum DC input current	23 A at -48 VDC
Maximum input W	1104 W
Maximum output power per power supply	930 W

Characteristic	Specification
Maximum inrush current	35 A (sub-cycle duration)
Maximum hold-up time	8 ms at 930 W
Power supply output voltage	12 VDC
Power supply standby voltage	12 VDC
Efficiency rating	Greater than 92% at 50% load
Form factor	RSP1

930-W DC Power Supply (Port-Side Exhaust) Specifications

These specifications apply to the 930-W DC (UCS-PSU-6332-DC) power supplies.

Characteristic	Specification
Maximum DC input current	23 A at -48 VDC
Maximum input W	1104 W
Maximum output power per power supply	930 W
Maximum inrush current	35 A at +35° Celcius
Maximum hold-up time	8 ms at 50 % load
Power supply output voltage	12 VDC
Power supply standby voltage	12 VDC
Efficiency rating	Climate Savers Platinum Efficiency (80Plus Platinum certified)
Form factor	1U

Power Cable Specifications

The following sections specify the power cables that you should order and use with AC, HVAC/HVDC, and DC power supplies.

AC Power Cables Supported by NX-OS Mode Switches

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-C14-AC	Power cord, C13 to C14 (recessed receptacle), 10 A, 9.8 feet (3 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)
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)
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)
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

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

Power Type	Power Cord Part Number	Cord Set Description
HVAC	CAB-HVAC-SD-0.6M	2-foot (0.6 m) cable with Saf-D-Grid and SD connectors
HVAC	CAB-HVAC-C14-2M	6.6-foot (2.0 m) cable with Saf-D-Grid and C14 connector (use for up to 240 V)
HVAC	CAB-HVAC-RT-0.6M	2-foot (0.6 m) cable with Saf-D-Grid and RT connector
HVDC	CAB-HVDC-3T-2M	6.6-foot (2.0 m) cable with Saf-D-Grid and three terminal connectors
All except Argentina, Brazil, and Japan	NO-POWER-CORD	No power cord included with switch

DC Power Cable Specifications

Power Supply	Power Cord	Cord Set Description
UCSC-PSU-930WDC (port-side intake airflow)	(customer supplied)	8 AWG insulated cable (10 AWG minimum) for each power supply
UCS-PSU-6332-DC (port-side exhaust airflow)	CAB-48DC-40A-8AWG	8-AWG cable with 3-pin keyed power supply connector and three wires (power source connection)
All except Argentina, Brazil, and Japan	NO-POWER-CORD	No power cord included with switch

Regulatory Standards Compliance Specifications

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

Table 1: 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.

Specification	Description
Safety	• UL 60950-1 Second Edition • CAN/CSA-C22.2 No. 60950-1 Second Edition • EN 60950-1 Second Edition • IEC 60950-1 Second Edition • AS/NZS 60950-1 • GB4943
EMC: Emissions	• 47CFR Part 15 (CFR 47) Class A • AS/NZS CISPR22 Class A • CISPR22 Class A • EN55022 Class A • ICES003 Class A • VCCI Class A • EN61000-3-2 • EN61000-3-3 • KN22 Class A • CNS13438 Class A
EMC: Immunity	• EN55024 • CISPR24 • EN300386 • KN 61000-4 series
RoHS	The product is RoH-6 compliant with exceptions for leaded-ball grid-array (BGA) balls and lead press-fit connectors.



LEDs

- [Switch Chassis LEDs, page 47](#)
- [Lane Link LEDs, page 48](#)
- [Fan Module LEDs, page 48](#)
- [Power Supply LEDs, page 48](#)

Switch Chassis LEDs

The BCN, STS, and ENV LEDs are located on the left side of the front of the switch. The port LEDs are 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 minor alarm threshold.
	Red	Temperature exceeds 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 is connected with a transceiver or other connector.
	Amber	Port is not connected.

Lane Link LEDs

The Lane Link LEDs indicate which of the break out lanes are being checked. If none of the Lane Link LEDs is lit, all four lanes are being checked.

LED Lit	Description
1	Checking lane 1.
2	Checking lane 2.
3	Checking lane 3.
4	Checking lane 4.
None	Checking all four lanes

Fan Module LEDs

The fan module LED is located below the air holes on the front of the module.

LED	Color	Status
STS	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 front 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.

 LED	 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—power supply might not be installed in the chassis.

 LED	 LED	Status
Off	Off	Power supply is not receiving power.
Green	Flashing amber	Power supply warning—possibly one of the following conditions: • High voltage • High power • Low voltage • Power supply installed in chassis but not connected to a power source • Slow power supply fan
Flashing green	Amber	Power supply failure—possibly one of the following conditions: • Over voltage • Over current • Over temperature • Power supply fan failure



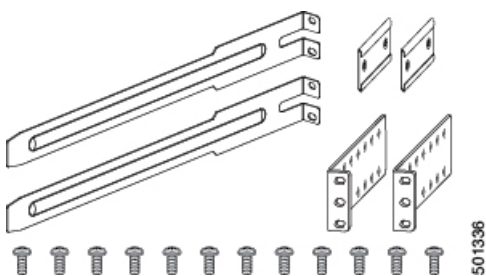
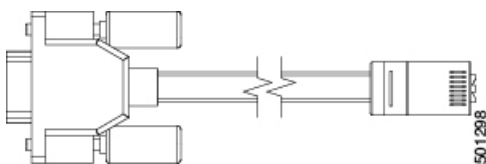
APPENDIX

Additional Kits

- [Accessory Kit, page 51](#)

Accessory Kit

The following table lists and illustrates the contents for the accessory kit (N3K-C3064-ACC-KIT).

Illustration	Description	Quantity
	Rack-mount kit • Front-mount angled bracket (2) • Rear-mount slider bracket (2) • Slider rails (2) • M4 x 7 mm mounting screws (16)	1
	Console cable with DB-9F and RJ-45F connectors	1
	Ground lug kit • Two-hole lug (1) • M4 x 8-mm Phillips pan-head screws (2)	1 kit
Not applicable	EAC Compliance document	1
Not applicable	Hazardous substances list for customers in China	1

**Note**

If you do not receive a part listed in this document, contact Cisco Technical Support at this URL: <https://www.cisco.com/warp/public/687/Directory/DirTAC.shtml>.

If you purchased this product through a Cisco reseller, you might receive additional contents in your kit, such as documentation, hardware, and power cables.

For a list of the available power cables, see [Power Cable Specifications](#), on page 43.



APPENDIX

E

Site Preparation and Maintenance Records

- [Site Preparation Checklist, page 53](#)
- [Contact and Site Information, page 55](#)
- [Chassis and Module Information, page 55](#)

Site Preparation Checklist

Planning the location and layout of your equipment rack or cabinet is essential for successful switch operation, ventilation, and accessibility.

The following table lists the site planning tasks that we recommend that you complete before you install the switch. Your completion of each task ensures a successful switch installation.

Planning Activity	Verification Time and Date
Space evaluation:	
Space and layout	
Floor covering	
Impact and vibration	
Lighting	
Physical access	
Maintenance access	
Environmental evaluation:	

Planning Activity	Verification Time and Date
Ambient temperature	
Humidity	
Altitude	
Atmospheric contamination	
Airflow	
Power evaluation:	
Input power type	
Power receptacles	
Receptacle proximity to the equipment	
Dedicated (separate) circuits for power redundancy	
UPS for power failures	
Grounding: proper wire gauge and lugs	
Circuit breaker size	
Grounding evaluation:	
Data center ground	
Cable and interface equipment evaluation:	
Cable type	
Connector type	
Cable distance limitations	
Interface equipment (transceivers)	
EMI evaluation:	

Planning Activity	Verification Time and Date
Distance limitations for signaling	
Site wiring	
RFI levels	

Contact and Site Information

Use the following worksheet to record contact and site information for the installation.

Contact person	
Contact phone	
Contact e-mail	
Building/site name	
Data center location	
Floor location	
Address (line 1)	
Address (line 2)	
City	
State/Province	
Contact person	
ZIP/postal code	
Country	

Chassis and Module Information

Use the following worksheet to record information about the switch.

Contract number	
-----------------	--

Chassis serial number	
Product number	

Use the following worksheet to record network-related information.

Switch IP address	
Switch IP netmask	
Hostname	
Domain name	
IP broadcast address	
Gateway/router address	
DNS address	

Use the following worksheet to record information about the modules in the switch.

Module Slot	Module Type	Module Serial Number	Notes
Fan module 1			
Fan module 2			
Fan module 3			
Fan module 4			
Power Supply 1			
Power Supply 2			