Cisco Nexus 3400-S Hardware Installation Guide

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Preface

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Audience

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

Related Documentation

Release Notes

Release Notes for the Cisco Nexus 3000 Series switches.

Transceiver Compatibility

Transceiver Modules Compatibility Information

Regulatory Compliance Guides

Regulatory, Compliance, and Safety Information for the Cisco Nexus 3000 and 9000 Series switches.

C H A P T E R 1

Overview

Overview of the Cisco Nexus 3408-S Switch

The Cisco Nexus 3408-S (N3K-C3408-S) is a 4 rack unit (RU) 8-slot modular chassis switch, which is configurable with up to 128 100-Gigabit QSFP28 ports or 32 400-Gigabit ports. This switch offers two management ports, one console port, and one USB port. This switch supports port-side intake airflow. The switch requires one AC, DC, or HVAC/HVDC power supply for operation, but it can have a second power supply for redundancy.

The following figure shows the fan-side chassis features that you use when installing the chassis or replacing its modules.

Figure 1: Fan-Side View of the Cisco Nexus 3408-S Chassis

1	Fan modules (3)	2	Grounding pad
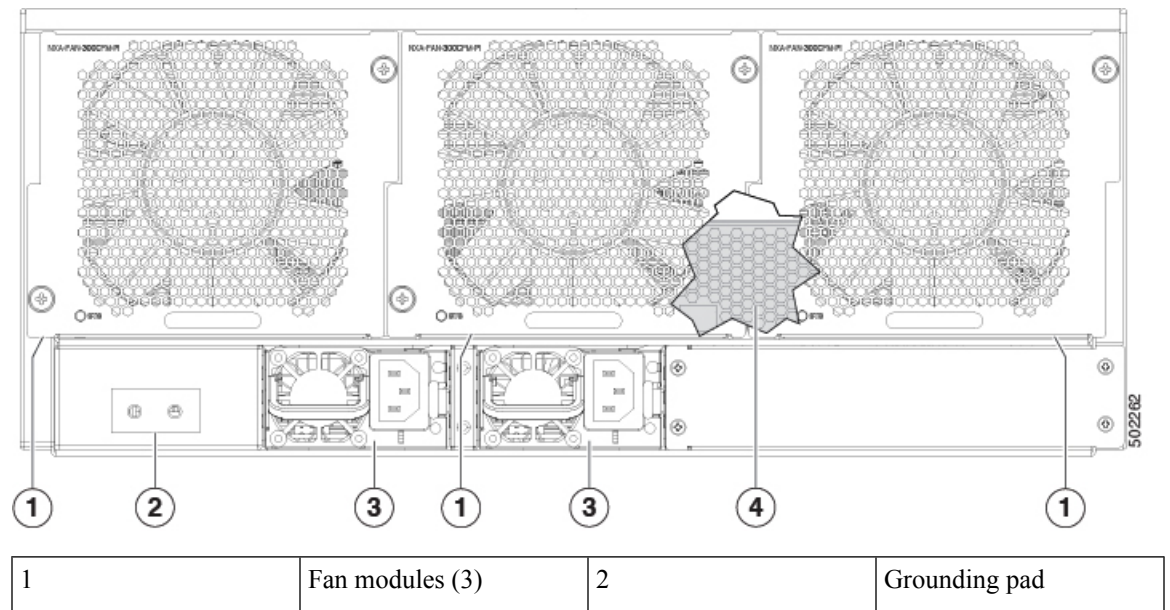
3	Power supply	4	Cisco Nexus NXB-CPU-FRU central processing unit (CPU) that is inside the chassis, behind the fan modules.

The following figure shows the port-side chassis features that you use when installing the chassis or replacing its modules.

Figure 2: Port-Side View of the Cisco Nexus 3408-S Chassis
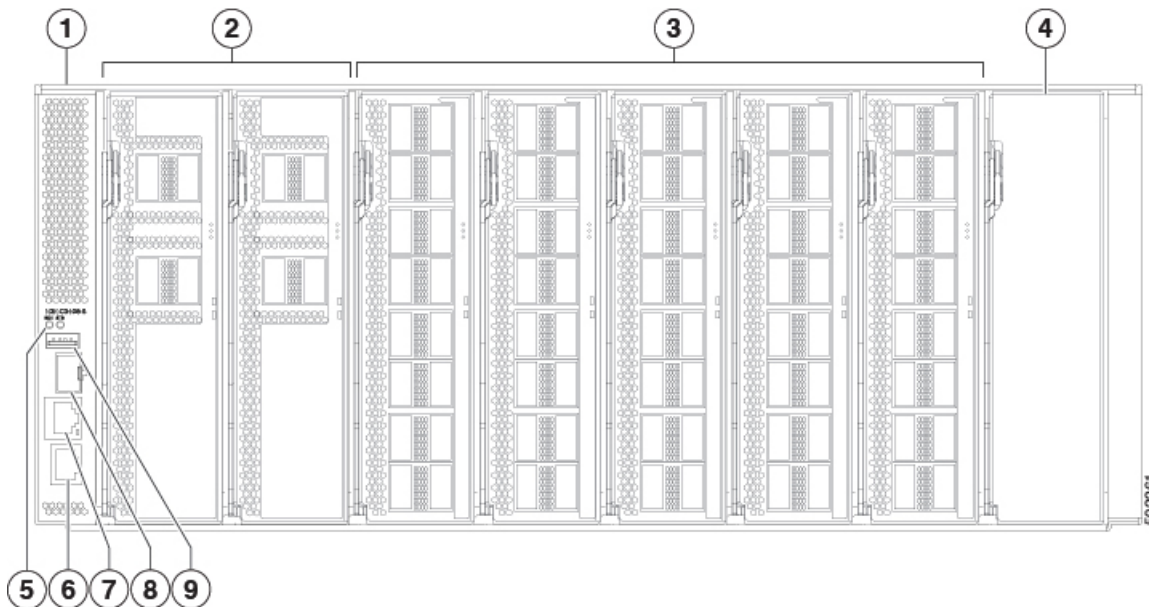
1	Cisco Nexus 3408-S modular chassis	2	Cisco Nexus NXM-X4D line-card expansion module (LEM) (up to 8)
3	Cisco Nexus NXM-X16C line-card expansion module (LEM) (up to 8)	4	Expansion module blank (NXA-XBLANK)
5	Beacon (BCN) and Status (STS) LEDs	6	Management port (RJ-45)
7	Console port (RS-232)	8	Management port (SFP)
9	USB port (1)		

The following figure shows the side chassis features that you use when installing the chassis.

Figure 3: Side View of the Cisco Nexus 3408-S Chassis
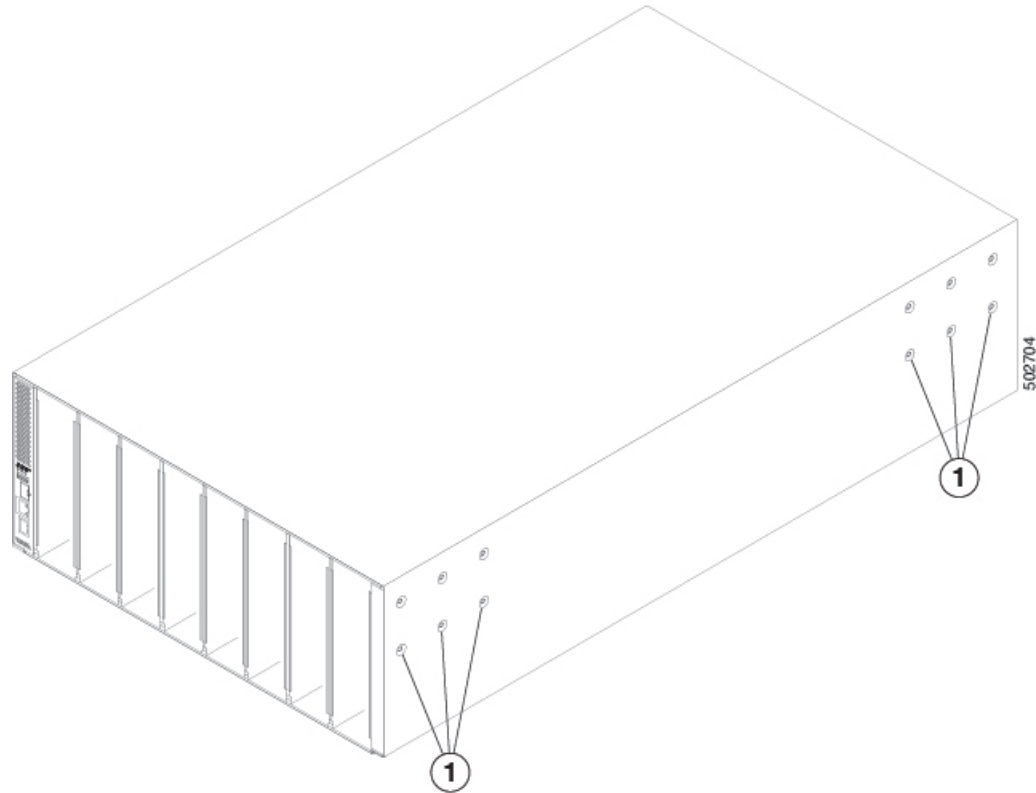
1	Screw holes for mounting brackets		

Overview of the Cisco Nexus 3432D-S Switch

The Cisco Nexus 3432D-S (N3K-C3432D-S) is a 1 rack unit (RU) switch with 32 QSFP-DD+ ports, 2 SFP+ ports, 2 management ports, 1 console port, and 1 USB port. This switch supports both port-side exhaust and port-side intake airflow schemes. The switch requires one AC power supply for operation, but it can have a second power supply for redundancy.

Note   If you have low-power input (100-120 VAC) and if the system is close to capacity, both power supplies need to be operational. Do not rely on redundant power to run the system. Redundant power applies to high-power input (200-240 VAC or 200-320 VDC).

Note   In the event that only one power supply is operating in an active system and a second power supply is inserted, the system fan will slow down to **50% of Max speed** for 12 seconds. It can take up to 10 seconds for the second power supply to become active. Please do not remove the first power supply during this time-frame, in order to avoid system shutdown.

Note	When using 1100W power supplies in combined mode, you will have the power to fully support 400G optics.
	When using 1100W power supplies in redundant mode, you will not have the power to fully support 400G optics. You will have the power to support 100G optics.

Note	Load optics and power supplies as needed:

- 32x100G optics can be supported by any power supply, (1500W or 1100W) at any input voltage range.

- 32x100G optics and 32x400G optics can be supported by two power supplies in combined mode, (1500W or 1100W) at any input voltage range.

- 25x400G optics can be supported by a single power supply or two power supplies in redundant mode, 1100W power supply at any input voltage range.

- 19x400G optics can be support by a single power supply or two power supplies in redundant mode, 1500W power supply at lower input voltage range of 100-120 VAC.

- 32x400G optics can be supported by a single power supply or two power supplies in redundant mode, 1500W power supply at higher input voltage range.

The following figure shows the fan-side chassis features that you use when installing the chassis or replacing its modules.

Figure 4: Fan-Side View of the Cisco Nexus 3432D-S Chassis
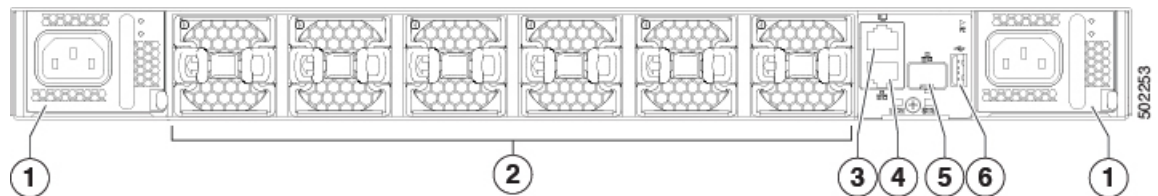
1	AC power supply (1 or 2)	2	Fan modules (6)
3	Console port (RS-232)	4	Management port (RJ-45)
5	Management port (SFP)	6	USB port (1)

The following figure shows the port-side chassis features that you use when installing the chassis or replacing its modules.

Figure 5: Port-Side View of the Cisco Nexus 3432D-S Chassis
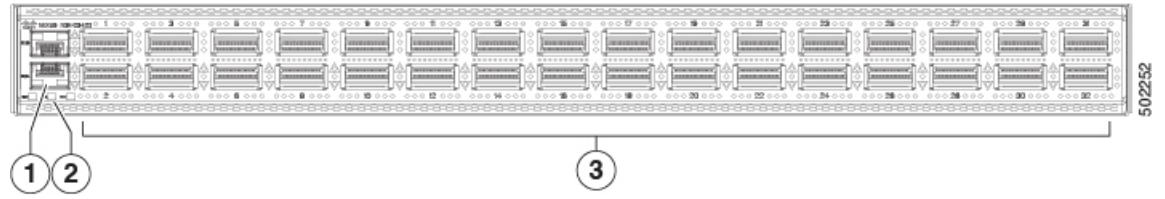
1	10-Gigabit SFP+ ports (2)	2	Beacon (BCN), Status (STS), and Environment (ENV) LEDs
3	40/100/200/400-Gigabit QSFP-DD ports (32)		

The following figure shows the side chassis features that you use when installing the chassis.

Figure 6: Side View of the Cisco Nexus 3432D-S Chassis
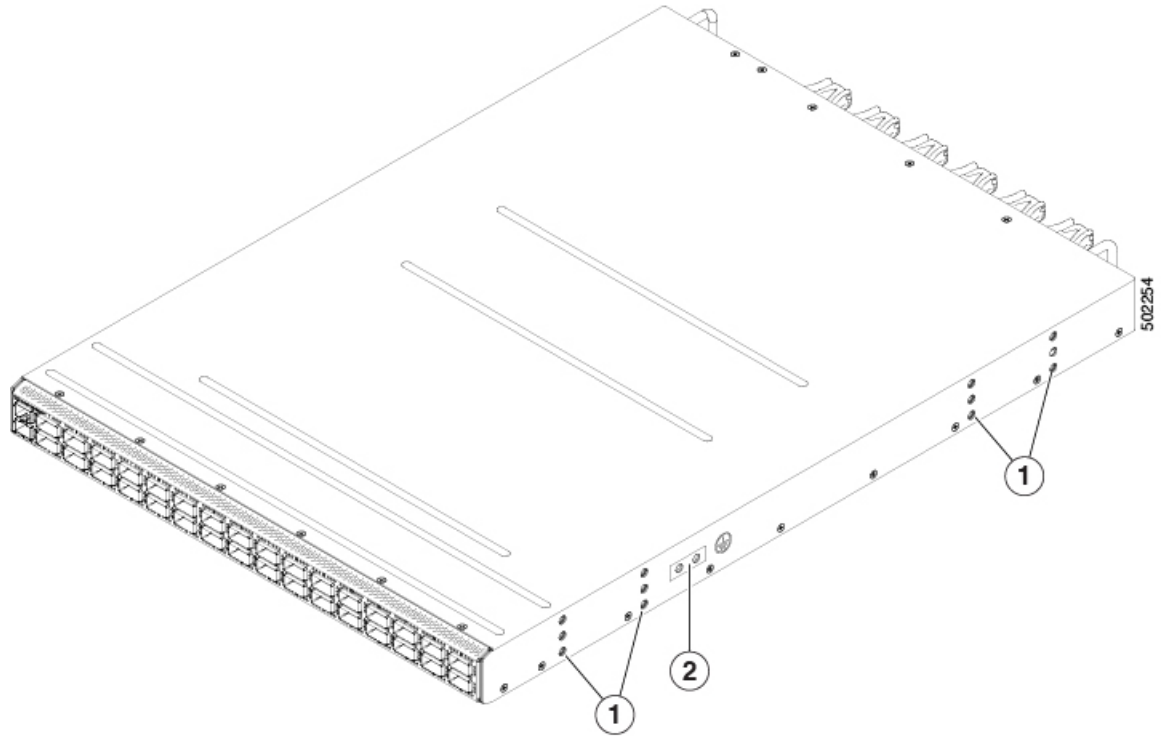
1	Screw holes for mounting brackets	2	Grounding pad

Preparing the Site

Temperature Requirement

This switch is rated to operate at 32 to 104°F (0 to 40°C). It can be stored at -40 to 158°F (-40 to 70°C).

Humidity Requirement

This switch is rated to operate at 8- to 80-percent relative humidity with 10-percent gradation per hour. It can be stored in an environment that has 5- to 95-percent relative humidity.

Buildings cooled with air conditioning during warm months and warmed during cold months usually maintain an acceptable level of humidity. However, if the site is unusually humid, use a dehumidifier to maintain the required humidity level.

Altitude Requirements

High-altitude (low-pressure) conditions outside of 0 to 5,000 feet (0 to 1524 m) can reduce the cooling efficiency and cause electrical problems.

Dust and Contaminants

To prevent contaminant buildup and increased internal chassis temperatures, make sure that the operating environment is as clean as possible and free of dust and other contaminants. Do not permit smoking, food, or drinks near the switch.

C H A P T E R 3

Installing the Chassis

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

Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. Read the installation instructions before using, installing, or connecting the system to the power source. Use the statement number provided at the end of each warning statement to locate its translation in the translated safety warnings for this device.

SAVE THESE INSTRUCTIONS

Warning

Statement 1017—Restricted Area

This unit is intended for installation in restricted access areas. Only skilled, instructed, or qualified personnel can access a restricted access area.

Warning

Statement 1030—Equipment Installation

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

Preparing to Install the Chassis

Before you can install the switch, you must verify the following:

- The installation site meets the following requirements as stated in Chapter 2:

  - Environmental requirements for temperature, humidity, altitude, and air particulates.

  - Cabinet or rack is installed and meets the requirements for the switch.

  Note Jumper power cords are available for use in a cabinet.

  - The rack is positioned so that you can install the switch with its cold air intakes positioned in a cold aisle.

    If the fan and power supply modules are burgundy or red colored, you must install the chassis with its port side in a cold aisle. If the modules are blue colored, you must be able install the chassis with the fan modules in a cold aisle.

  - Earth ground connection is close to the switch. You must be able to easily connect the switch directly to an earth ground or indirectly through a grounded rack.

  Warning High leakage current. Earth connection essential before connecting to power supply.

  - Site power meets the switch requirements. If you are using n+n redundancy, you must have two power sources within reach of the switch when it is installed in the cabinet or rack.

    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 systems such as the Cisco Nexus switches. These switches can have substantial current draw fluctuations because of fluctuating data traffic patterns.

    Ensure that circuits are sized according to local and national codes. For North America, the power supply requires a 15-A or 20-A circuit.

  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.

  - There is adequate clearance around the rack to install the switch and to allow for unimpeded airflow.

- You have the following equipment in addition to the switch and the kits shipped with the switch:

- Eight customer-supplied 12-24 or 10-32 screws (required for attaching slider rails and mounting bracket to the mounting rails)

- Number 1 and number 2 Phillips screwdrivers with torque capability

- 3/16-inch flat-blade screwdriver

- Tape measure and level

- ESD wrist strap or other grounding device (wrist strap can be found in the accessory kit)

- Antistatic surface large enough to place the switch

- Grounding cable (6 AWG recommended), sized according to local and national installation requirements; the required length depends on the proximity of the switch to proper grounding facilities

- Crimping tool large enough to accommodate the girth of the grounding lug

- Wire stripping tool

Unpacking and Inspecting the Chassis

⚠ Caution   When handling switch components, such as fan or power supply modules, wear a grounded ESD strap and handle the modules by their carrier edges only. To ground the ESD strap, make sure that it is attached to an earth ground, a grounded chassis, or a grounded rack.

🔍 Tip   Keep the shipping container in case the chassis requires shipping in the future.

✎ Note   The switch is thoroughly inspected before shipment. If any damage occurred during transportation or any items are missing, contact your customer service representative immediately.

To inspect the switch, follow these steps:

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

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 the packing slip)

- Model and serial number of the damaged unit

- Description of damage

- Effect of damage on the installation

- Photos of the damaged shipping containers and damaged product

Step 3   For dual direction airflow switches, check to be sure that all of the fan and power supply modules have the same airflow direction.

- Port-side intake airflow direction indicated with burgundy coloring

- Port-side exhaust airflow direction indicated with blue coloring

Installing a 1(RU) Rack in a Four-Post Rack

Installing the Switch Using the NXK-ACC-KIT-1RU Rack-Mount Kit

To install the switch, you must attach front and rear mounting brackets to the switch. Then install slider rails on the rear of the rack and slide the switch onto the slider rails. 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 supply the eight 10-32 or 12-24 screws 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 that you 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)

- You install and secure the rack to its location.

Step 1   Install two front rack-mount brackets and the two rear rack-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 are 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 are in the cold aisle.

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

Note   You can align the holes in the rack-mount bracket to the 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 that is required for interface cables (3 inches [7.6 mm] minimum) and module handles (1 inch [2.5 mm] minimum).
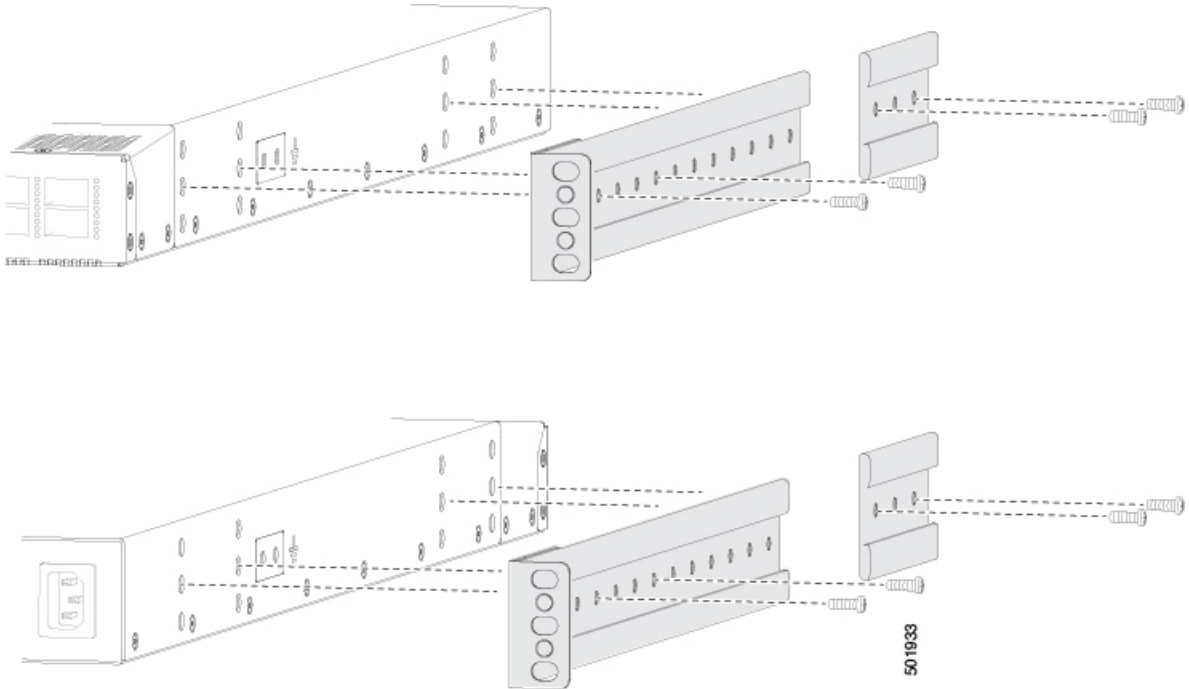
c) Secure the front-mount bracket and the back-mount bracket to the chassis using four M4 screws and tighten each screw to 12 in-lb (1.36 N·m) of torque.

d) Repeat Step 1 for the other front rack-mount bracket and the other back-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.

Note   Depending on the chassis depth, the back rack-mount bracket may not fit. In that case, there is no need to use the back rack-mount bracket.

Step 2   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 the Grounding the Chassis, on page 23 section. If you are installing the chassis into a grounded rack, you can skip this step.

Step 3   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 12-24 screws or 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.
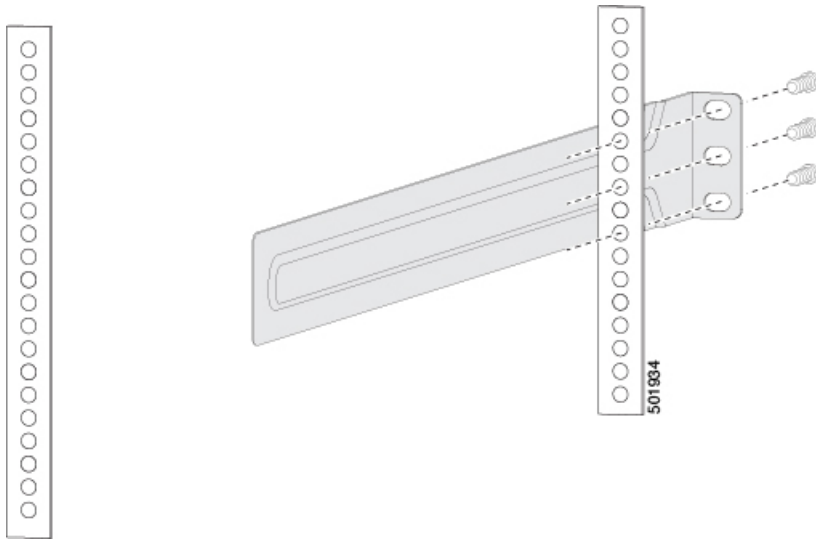
c) Repeat Step 3 to attach the other slider rail to the other side of the rack.

   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 4   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).

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.

   Note   If you attached a grounding cable to the chassis, you will need to bend one of the rack-mount rails slightly to allow the grounding lug to go behind the rail.

c) Holding the chassis level, insert screws (12-24 or 10-32, depending on the rack type) in each of the two front rack-mount brackets (using a total of six screws) and into the cage nuts or threaded holes in the vertical rack-mounting rails (see the following figure).
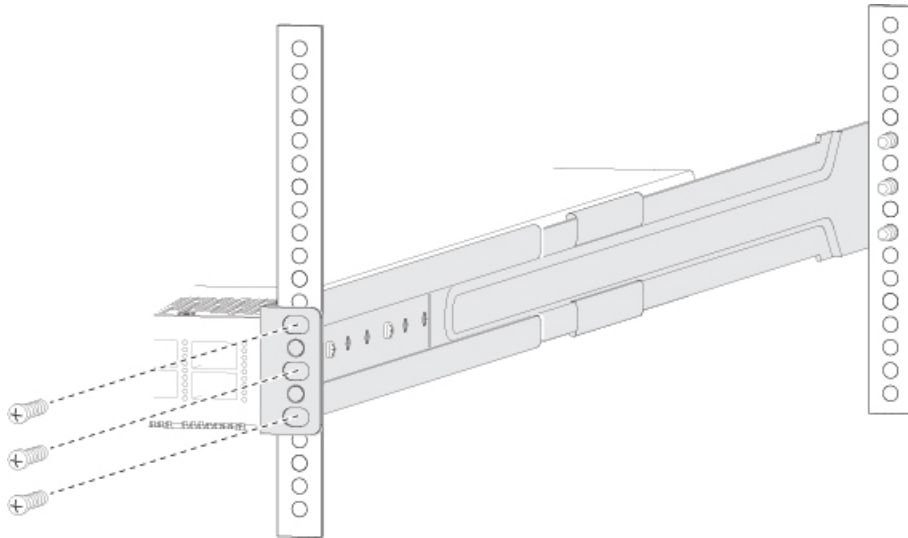
d) Tighten the 10-32 screws to 20 in-lb (2.26 N·m) or tighten the 12-24 screws to 30 in-lb (3.39 N·m).

Step 5   If you attached a grounding wire to the chassis grounding pad, connect the other end of the wire to the facility ground.

Installing the Switch Using the N3K-C3064-ACC-KIT Rack-Mount Kit

To install the switch, you must attach front and rear mounting brackets to the switch. Then install slider rails on the rear of the rack and slide the switch onto the slider rails. 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 supply the eight 10-32 or 12-24 screws that are 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 that you 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)

- Install and secure the rack 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 are 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 are in the cold aisle.

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 that you require for interface cables (3 inches [7.6 mm] minimum) and module handles (1 inch [2.5 mm] minimum).
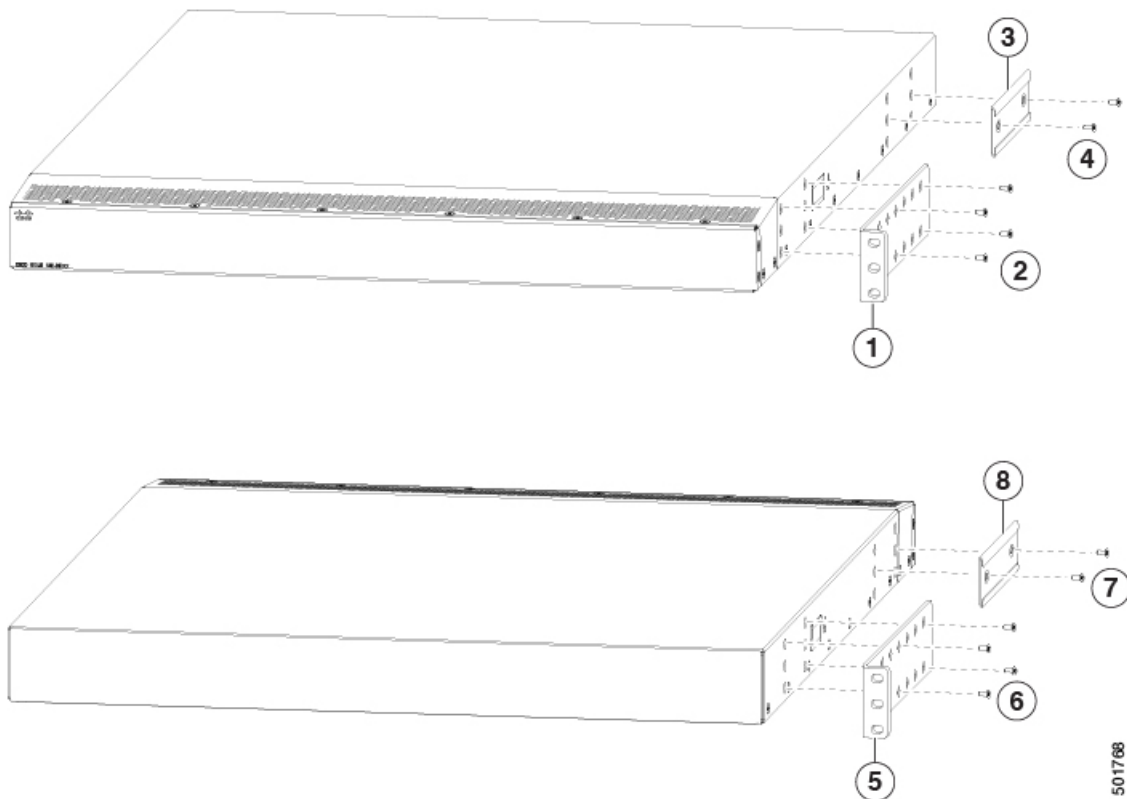

1	Front rack-mount bracket that aligns to the port end of the chassis.	5	Front rack-mount bracket that aligns to the module end of the chassis.
2	Four M4 screws used to attach the bracket to the chassis.	6	Four M4 screws used to attach the bracket to the chassis.
3	Rear rack-mount guide that aligns to 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 that aligns 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 the Grounding the Chassis, on page 23 section.. 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.
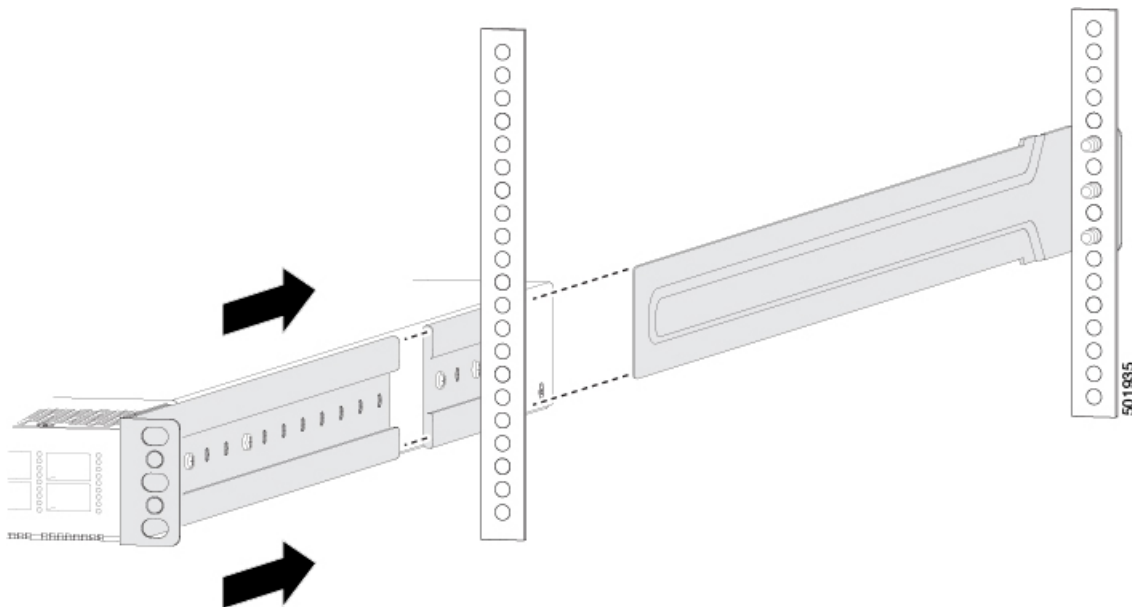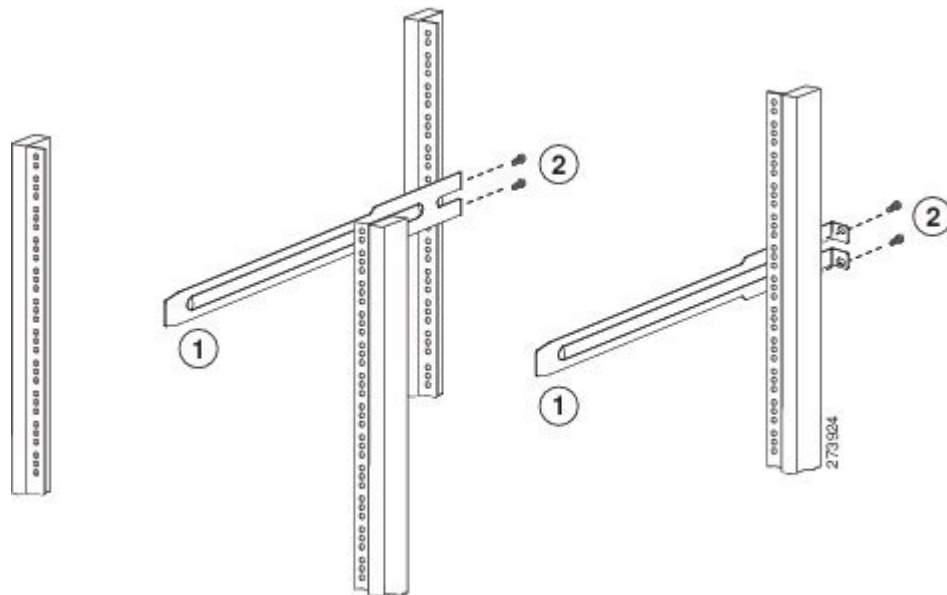
1	Slider rail with screw holes aligned to screw holes in rack.	2	Two customer-supplied 12-24 or 10-32 screws that are used to attach each slider rail to the rack.

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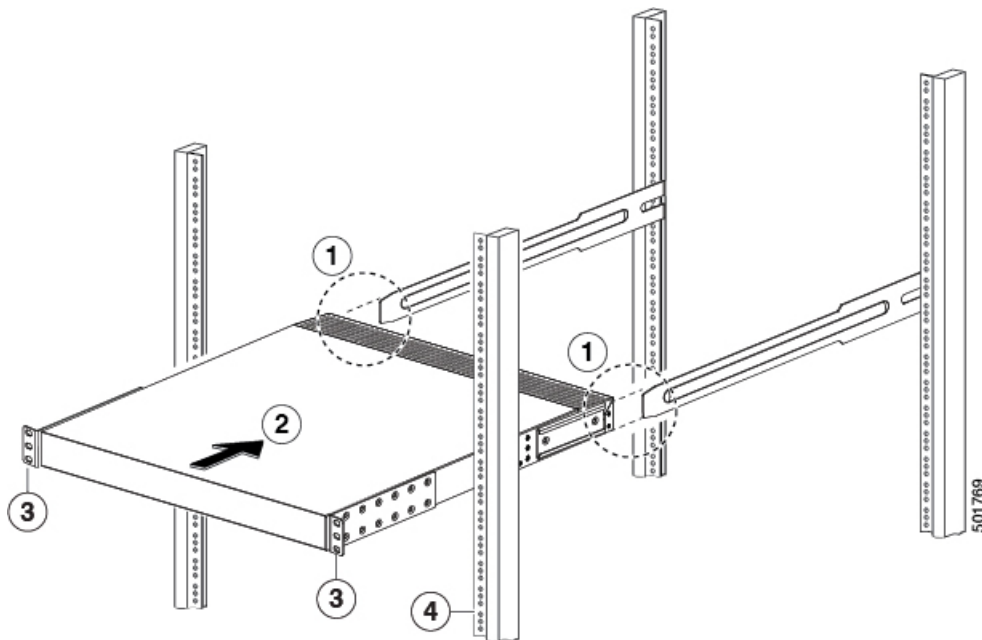
1	Align the two rear rack-mount bracket guides with the slider rails installed in the rack.	3	Front-mount brackets.
2	Slide the rack-mount guides onto the slider rails until the front rack-mount brackets come in contact with the front rack-mount rails.	4	Mounting rails on rack or cabinet posts.

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.

Note   If you attached a grounding cable to the chassis, you will need to bend one of the rack-mount rails slightly to allow the grounding lug to go behind the rail.

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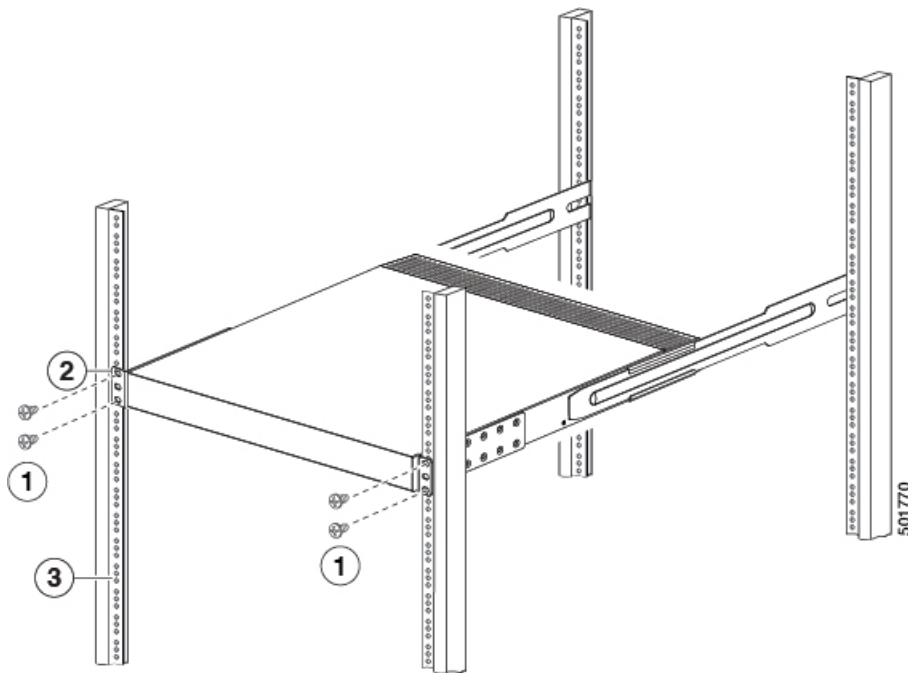
1	Fasten the chassis to the front of the rack with two 12-24 or 10-32 screws on each side.	3	Mounting rails on rack or cabinet posts.
2	Front-mount bracket.		

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.

Installing a 4 (RU) Chassis in a Four-Post Rack

This section describes the rack installation for the Cisco Nexus 3408-S platform switch into a four-post rack.

Before moving or lifting the chassis, follow these guidelines:

- Disconnect all cables from the switch.
- Ensure that there is adequate space around the switch for servicing and airflow.
- Never attempt to lift an object that is too heavy for you to lift by yourself.
- Ensure that you have solid footing. Distribute the weight of the switch is evenly between your feet.
- Lift the switch slowly, keeping your back straight. Lift with your legs, not with your back. Bend at the knees, not at the waist.

Step 1   Attach two front-mount brackets to the sides of the chassis as follows:

a) Align the two holes in one side of a front-mount bracket to the holes on the left or right side of the chassis as shown in the following figure.

Figure 7: Aligning and Attaching Front-Mount Brackets to the Chassis
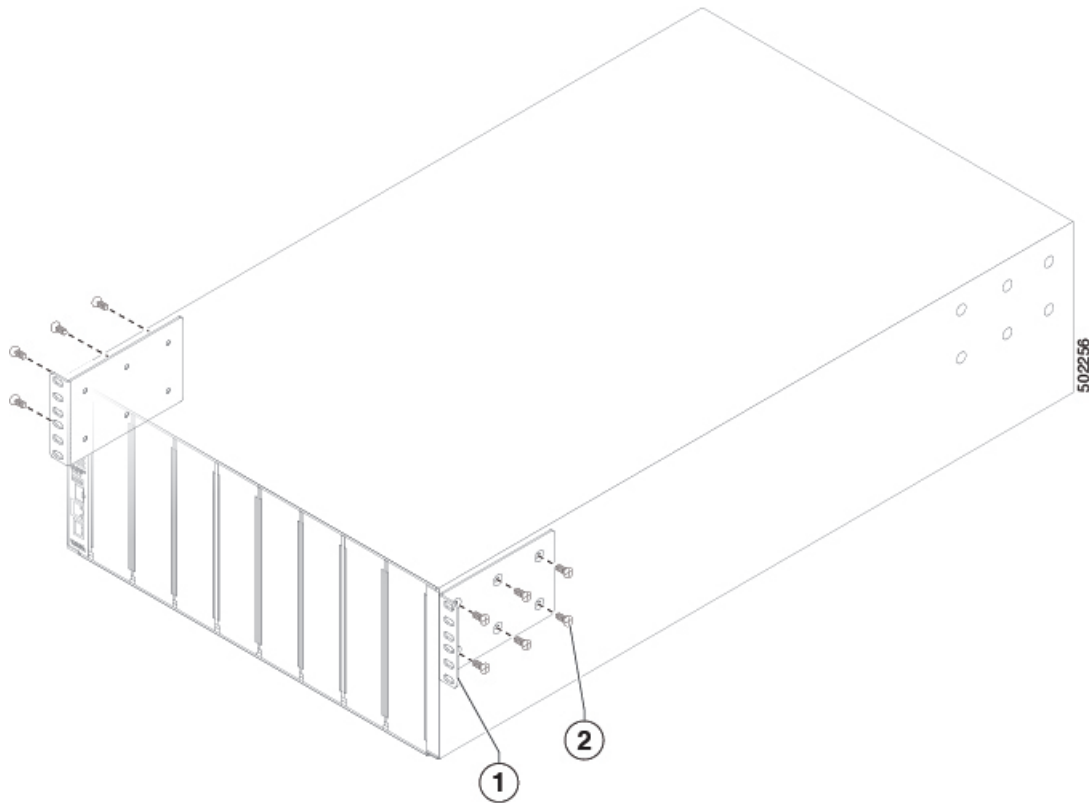
| 1 | Front rack-mount bracket | 2 | M4 x 6-mm screws |

b) Use M4 x 6 mm screws to attach the bracket to the chassis and tighten each screw to 12 in-lb (1.36 N·m) of torque.
c) Repeat Steps 1a and 1b to attach the other front-mount bracket to the other side of the chassis.

Step 2 Align the bottom-support rails so that they form a shelf for the chassis.

Note The bottom-support rails are identical and interchangeable. Use each for either the right, or the left side of the rack.

a) Rotate one of the rails as shown in the following figure.

Figure 8: Aligning the Bottom-Support Rails
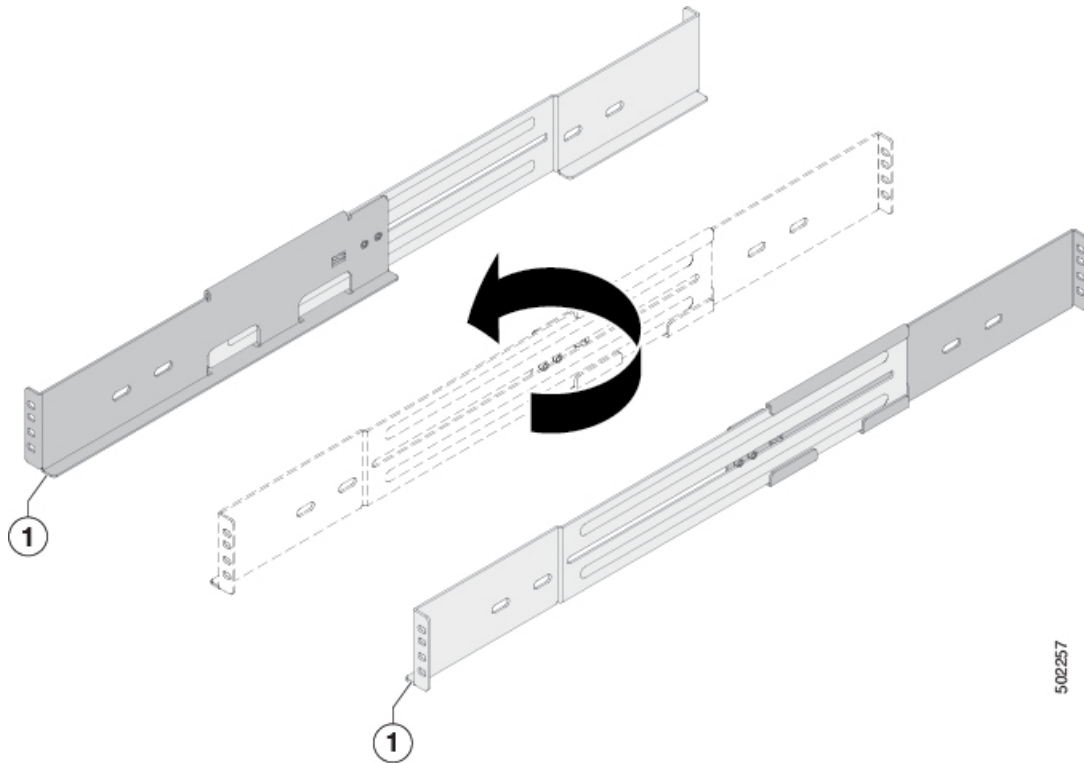
502257

1	Bottom-support rail (2)		

Step 3 Attach the bottom-support rails on the rack as follows:

    a) Position an expanding set of bottom-support brackets on the rack with each end touching a vertical mounting rail on the front and rear of the rack as shown in the following figure..

Figure 9: Positioning the Bottom-Support Rails
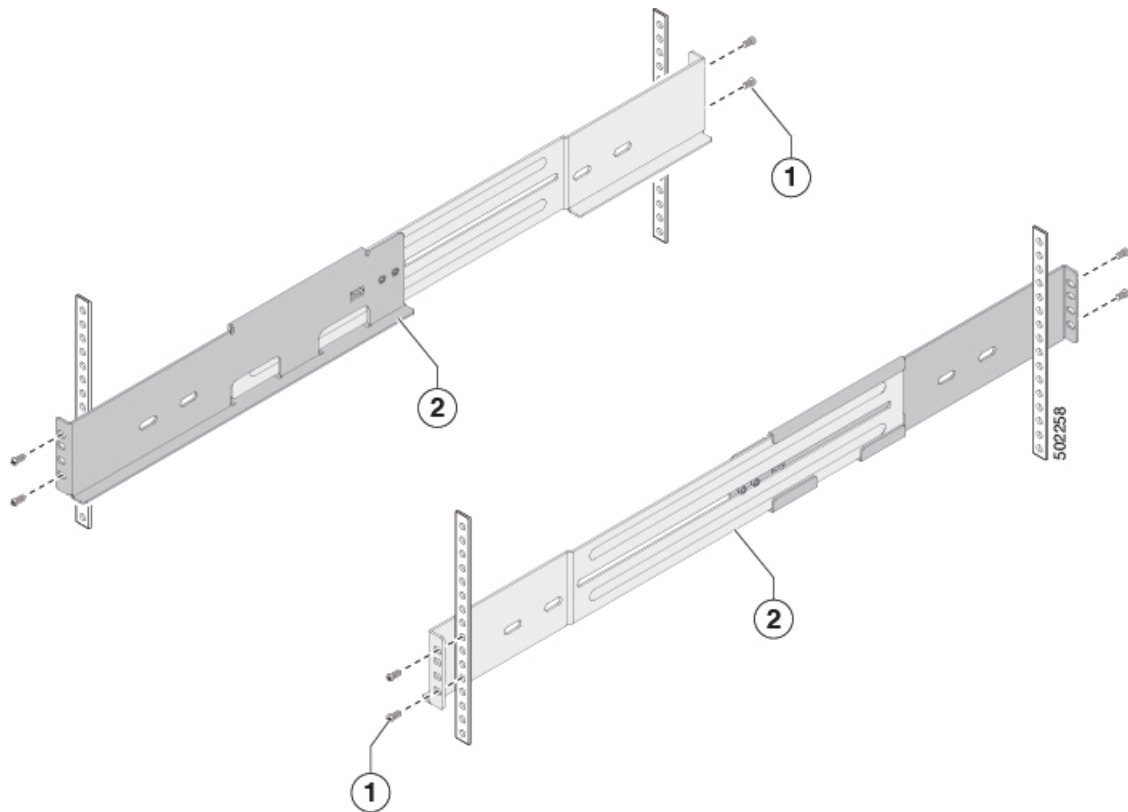
1		Screws holding the bottom-support bracket to the rack	2		The bottom-support brackets (2)

b) Holding the bottom-support rail level, attach the rail to the front and rear vertical mounting rails using four customer-supplied screws that are appropriate for the rack (use two screws for each vertical mounting rail), and tighten each screw to the appropriate torque setting for that screw.

Typically, you use one of the following types of screws and the associated torque settings when tightening them:

- M4 screws—Use 12 in-lb (1.36 N·m) of torque.

- M6 screws—Use 40 in-lb (4.5 N·m) of torque.

- 10-32 screws— Use 20 in-lb (2.26 N·m) of torque.

If the rack requires another type of screw, use the appropriate torque setting for that type of screw.

c) Repeat Steps 3a and 3b to attach the other expanding bottom-support rail to the other side of the rack at the same level as the attached bottom-support rail.

Note   Verify that the two sets of bottom-support rails are level with each other before going to the next step.

Step 4   Install the chassis in the rack as follows:

a) Slide the power supply end of the chassis onto the installed bottom-support rails as shown in the following figure.

When you have fully pushed the chassis all the way onto the bottom-support rails, the chassis stops when the front-mount brackets touch the front vertical mounting rails.

Figure 10: Sliding the Chassis onto the Bottom-Support Rails
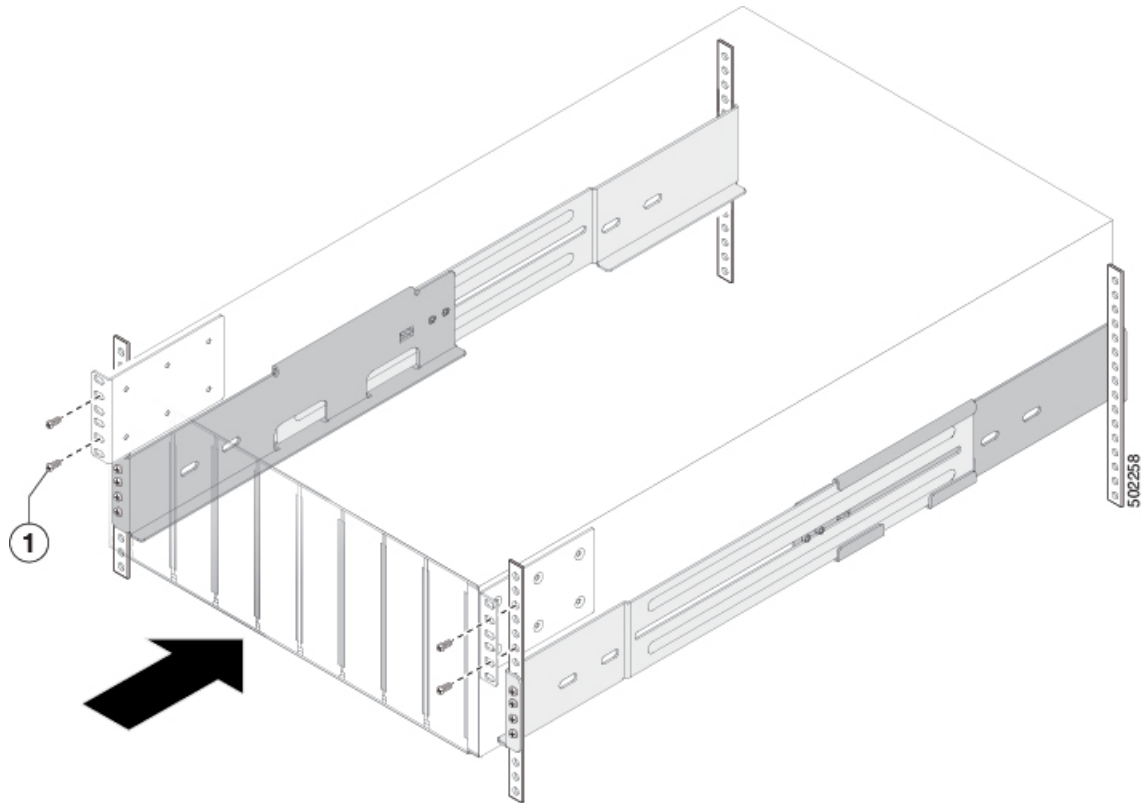
1	Rack-mount screw		

b) Use screws that are appropriate for the rack to attach the front-mount brackets to the rack.

Typically, you use one of the following types of screws and the associated torque settings when tightening them:

- M4 screws—Use 12 in-lb (1.36 N·m) of torque.

- M6 screws—Use 40 in-lb (4.5 N·m) of torque.

- 10-32 screws— Use 20 in-lb (2.26 N·m) of torque.

If the rack requires another type of screw, use the appropriate torque setting for that type of screw.

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.

Note   The location of the grounding pad on each switch can be found in the Overview section.

The switch is grounded when you connect the chassis and the power supplies to the earth ground in the following ways:

- You connect the chassis (at its grounding pad) to the data center ground. If the rack is fully-bonded and grounded, you can ground the switch by connecting it to the rack.

Note   The chassis ground connection is active even when the power supply modules have not been grounded or connected to the switch.

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. If you installed the switch chassis into a bonded rack (see the rack manufacturer's instructions for more information) that now has a connection to the data center earth ground, you can ground the chassis by installing it into the rack. Otherwise, you must connect the chassis grounding pad directly to the data center ground.

Step 1   Use a wire-stripping tool to remove approximately 0.75 inches (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.

Figure 11: Grounding the Chassis
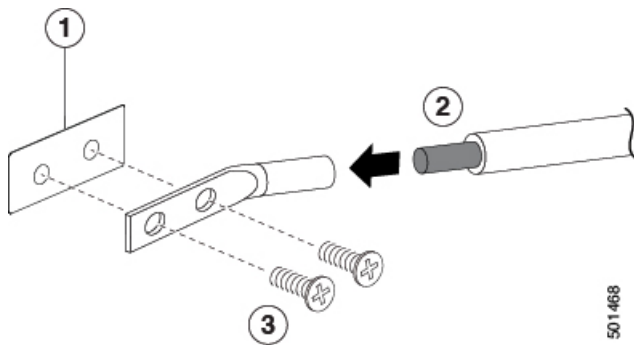
1	Chassis grounding pad	3	Two M4 screws used to secure the grounding lug to the chassis
2	Grounding cable, with 0.75 in. (19 mm) of insulation stripped from one end, inserted into the grounding lug and crimped in place		

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 12 in lb (1.36 N·m) of torque.

Step 4 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. If the rack is fully bonded and grounded, connect the grounding wire as explained in the documentation provided by the vendor for the rack.

Starting the Switch

To power up the switch, follow these steps:

Before you begin

- Verify that the switch is fully installed and secured to a rack.

- Verify that the switch is adequately grounded to the facility earth ground or to a grounded rack.

- Verify that all of the fan and power supply modules are installed in the chassis.

- If you are using a DC power source, verify that the circuit is shut off at a circuit breaker.

Step 1 If the switch has AC power supplies, connect those power supplies to an AC power source as follows:

a) Verify that the AC power source is turned off at the circuit breaker.
b) Plug the power cable into the power receptacle on the power supply.
c) Attach the other end of the power cable to the AC power source.
d) Turn on the power at the circuit breaker.
e) Verify that the power supply is functioning by making sure that the OK LED turns green and the FAULT LED is off.

Step 2 If the switch has HVAC/HVDC power supplies, connect those power supplies 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 If the switch has DC power supplies, connect those power supplies to a DC power source as follows:

a) Verify that the DC power source is turned off at the circuit breaker.

b) Remove the clear plastic safety cover that prevents you from touching the negative (-) and positive (+) terminals on the power supply.

c) Connect a negative cable from the power source to the left (-) terminal on the power supply.

d) Connect a positive cable from the power source to the right (+) terminal on the power supply.

e) Clip on the clear plastic safety cover over the power supply terminals to prevent accidental touching of these terminals.

f) Turn on the power at the circuit breaker.

g) Verify that the power supply is functioning by making sure that the OK LED turns green and the FAULT LED is off.

Step 4 Listen for the fans; they should begin operating when the power cable is plugged in.

Step 5 After the switch boots, verify that the following LEDs are on:

- Power supply LED—lit and green

  If not green, try removing the module part way from its slot and reinstalling it.

- Fan LED—lit and green

  If not green, try removing the module part way from its slot and reinstalling it.

- System Status LED—lit and green (if this LED is orange or red, then one or more environmental monitors is reporting a problem.)

• Link LEDs for the Ethernet connector—Off

Connecting the Switch to the Network

Preparing for Network Connections

When preparing your site for network connections to your switch, consider the following for each type of interface and gather all the required equipment before connecting the ports:

- Cabling required for each interface type

- Distance limitations for each signal type

- Additional interface equipment required

Connecting to a Console

You can connect the switch to a console to perform the following functions:

- Configuring the switch using the CLI

- Monitoring network statistics and errors

- Configuring SNMP agent parameters

- Downloading software updates

Note We recommend that you use this port to create a local management connection to set the IP address and other initial configuration settings before connecting the switch to the network for the first time.

The console port on the switch is an RS-232 port with an RJ-45 interface. This is an asynchronous (async) serial port; any device connected to this port must be capable of asynchronous transmission.

⚠️

Caution The console port can be used to connect to a modem. If you do not connect it to a modem, connect it either before powering the switch on or after the switch has completed the boot process.

Before you begin

Before you connect the switch to a console, ensure that you have the following:

- Computer terminal that supports VT100 terminal emulation. The terminal emulation software (such as HyperTerminal or Procomm Plus) makes communication between the switch and a computer possible during setup and configuration.

Step 1 Configure the terminal emulator program to match each of the following default port characteristics:

- 9600 baud
- 8 data bits
- 1 stop bit
- No parity

Step 2 Connect the DB-9 connector on the other end of the cable to the computer serial port.

What to do next

You are ready to configure the switch.

Connecting the Management Interface

Before you begin

To prevent an IP address conflict, you must complete the initial configuration and establish an IP address for the switch.

Step 1 Connect the appropriate modular cable to on the switch.
Step 2 Connect the other end of the cable to the switch, hub, or router.

Connecting Interface Ports to Other Devices

After you perform the initial configuration for the switch and create a management connection, you are ready to connect the interface ports on the switch to other devices. Depending on the types of interface ports on the

switch, you will need to use interface cables with QSFP+, SFP+, or SFP transceivers or RJ-45 connectors to connect the switch to other devices.

The transceivers used with many fiber-optic cables come separated from their cables. To prevent damage to the fiber-optic cables and their transceivers, we recommend that you keep these transceivers disconnected from their fiber-optic cables when installing the transceiver in the interface port. Before removing a transceiver for a fiber-optic cable, you must 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.

Warning   **Statement 1051**—Laser Radiaation

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

Installing SFP+ and SFP Transceivers

Note   Excessively removing and installing an SFP or SFP+ transceiver can shorten its life. Unless it is absolutely necessary, do not remove and insert SFP or SFP+ transceivers. To prevent damage to an optical cable and transceiver, we recommend that you disconnect cables before installing or removing transceivers.

Note   If you cannot install the cable into the transceiver, insert or leave the dust plug in the cable end of the transceiver.

Step 1   Attach an ESD-preventive wrist strap and follow its instructions for use.

Step 2   Remove the dust cover from the port cage.

Step 3   Remove the dust cover from the port end of the transceiver.

Step 4   Insert the transceiver into the port as follows:

- If the transceiver has a Mylar tab latch, position the transceiver with the tab on the bottom, and then gently insert the transceiver into the port until it clicks into place.

- If the transceiver has a bale clasp latch, position the transceiver with the clasp on the bottom, close the clasp by pushing it up over the transceiver, and then gently insert the transceiver into the port until it clicks into place.

    Caution   If the transceiver does not install easily, ensure that it is correctly positioned and the tab or clasp are in the correct position before continuing.

Installing QSFP+ Transceivers

The QSFP+ transceiver module can have either a bail-clasp latch or a pull-tab latch.

⚠

Caution   The QSFP+ transceiver module is a static-sensitive device. Always use an ESD wrist strap or similar individual grounding device when handling QSFP+ transceiver modules or coming into contact with system modules.

Step 1   Attach an ESD wrist strap to yourself and a properly grounded point on the chassis or the rack. Follow its instructions for use.

Step 2   Remove the QSFP+ transceiver module from its protective packaging.

Step 3   Remove the dust cover from the port end of the transceiver.

Step 4   Check the label on the QSFP+ transceiver module body to verify that you have the correct model for your network.

Step 5   For optical QSFP+ transceivers, remove the optical bore dust plug and set it aside.

Step 6   For transceivers equipped with a bail-clasp latch, do the following:

a)   Keep the bail-clasp aligned in a vertical position.

b)   Align the QSFP+ transceiver in front of the module's transceiver socket opening and carefully slide the QSFP+ transceiver into the socket until the transceiver makes contact with the socket electrical connector.

Step 7   For QSFP+ transceivers equipped with a pull-tab, do the following:

a)   Hold the transceiver so that the identifier label is on the top.

b)   Align the QSFP+ transceiver in front of the module's transceiver socket opening and carefully slide the QSFP+ transceiver into the socket until the transceiver makes contact with the socket electrical connector.

Installing SFP+ and SFP Optical Cables

Note To prevent damage to an optical cable and transceiver, disconnect cables before installing or removing transceivers.

Step 1 Attach an ESD-preventive wrist strap and follow its instructions for use.

Step 2 Remove the dust cover from the connector on the cable.

Step 3 Remove the dust cover from the cable end of the transceiver.

Step 4 Align the cable connector with the transceiver and insert the connector into the transceiver until it clicks into place.

Caution If the cable does not install easily, ensure that it is correctly positioned before continuing.

Note If you cannot install the cable into the transceiver, insert or leave the dust plug in the cable end of the transceiver.

For instructions on verifying connectivity, see the appropriate Cisco Nexus Series configuration guide.

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 Modules

Replacing a 1 (RU) Fan Module

The fan module is designed to be removed and replaced while the system is operating without causing an electrical hazard or damage to the system if the replacement is performed within one minute.

If you do not have the appropriate replacement fan module, leave the original fan module in its slot to preserve the designed airflow for the switch until you have the replacement fan module. The module number can be found on the chassis.

Warning

Statement 263—Fan Warning

The fans might still be turning when you remove the fan assembly from the chassis. Keep fingers, screwdrivers, and other objects away from the openings in the fan assembly's housing.

Before you begin

- Verify that you have an ESD wrist strap or other device to prevent ESD damage for components that you touch.

- Verify that you have an antistatic surface or bag for placing the fan module that you remove from the chassis.

- Verify that the replacement fan module has the correct direction of airflow (it has the same coloring as the other fan and power supply modules in the same chassis).

Step 1   Attach an ESD wrist strap or other ESD device to your body and an earth ground to prevent ESD damage.

You can attach the ESD device to any earth ground or grounded object, such as a grounded rack or ground connection on a chassis.

Step 2   Remove the fan module that you are replacing as follows:

a) On the fan module that you are removing, press the two sides of the fan module handle next to where it connects to the fan module and pull on the handles enough to unseat the module from its connectors.

b) Holding the handle, pull the module out of the chassis and set it on an antistatic surface or in a antistatic bag.

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.

Step 3   Install the replacement fan module as follows:

a) Holding the fan module by its handle, align the back of the fan module (the side with the electrical connectors) to the open fan slot in the chassis.

b) Slide the fan module into the slot until it clicks in place.

c) Verify that the Status (STS) LED turns on and becomes green.

Replacing a 4 (RU) Fan Module

The fan module is designed to be removed and replaced while the system is operating without causing an electrical hazard or damage to the system if the replacement is performed within one minute.

If you do not have the appropriate replacement fan module, leave the original fan module in its slot to preserve the designed airflow for the switch until you have the replacement fan module. The module number can be found on the chassis.

Warning   **Statement 263**—Fan Warning

The fans might still be turning when you remove the fan assembly from the chassis. Keep fingers, screwdrivers, and other objects away from the openings in the fan assembly's housing.

Before you begin

- Verify that you have an ESD wrist strap or other device to prevent ESD damage for components that you touch.

- Verify that you have an antistatic surface or bag for placing the fan module that you remove from the chassis.

- Verify that the replacement fan module has the correct direction of airflow (it has the same coloring as the other fan and power supply modules in the same chassis).

Step 1   Attach an ESD wrist strap or other ESD device to your body and an earth ground to prevent ESD damage.

You can attach the ESD device to any earth ground or grounded object, such as a grounded rack or ground connection on a chassis.

Step 2 Remove the fan module that you are replacing as follows:

a) On the fan module that you are removing, unscrew the two captive screws on the front of the fan module until each screw is free of the chassis.

b) Holding the handle, pull the module out of the chassis and set it on an antistatic surface or in a antistatic bag.

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.

Step 3 Install the replacement fan module as follows:

a) Hold the fan module with two hands. One hand holding its handle, and one hand supporting the weight of the fan module. Align the back of the fan module (the side with the electrical connectors) to the open fan slot in the chassis.

b) Slide the fan module into the slot until it clicks in place.

c) Tighten the fan module captive screws.

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

Replacing an AC Power Supply

You can replace an AC power supply during operations so long as there is another power supply installed and operating during the replacement. The switch requires only one power supply for operations, so you can hot swap the redundant power supply during operations. If there is only one power supply installed in the chassis, you can replace it by installing the new power supply in the open power supply slot before removing the other power supply. The module number can be found on the chassis.

Before you begin

• Verify that you have an ESD wrist strap or other device to prevent ESD damage to the components that you touch.

• Verify that you have an antistatic surface or bag for placing the power supply module that you remove from the chassis.

• Verify that the replacement power supply module has the correct direction of airflow (it has the same coloring as the other fan and power supply modules in the same chassis). Otherwise the switch can overheat and shut down.

Step 1 Attach an ESD wrist strap or other ESD device to your body and an earth ground to prevent ESD damage.

You can attach the ESD device to any earth ground or grounded object, such as a grounded rack or ground connection on a chassis.

Step 2 Remove the power supply as follows:

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

b) 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.

c) 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.

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

Step 3 Install the replacement power supply as follows:

a) Holding the replacement power supply with one hand underneath the module and the other hand holding the handle, align the back end of the power supply (the end with the electrical connections) to the open power supply slot and slide the power supply all the way into the slot until it clicks into place.

b) 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, press it all the way into the slot until it clicks in place.

Step 4 Connect the new power supply to an AC power source as follows:

a) Attach the power cable to the electrical outlet on the front of the power supply.

b) Connect the other end of the power cable to an AC power source.

- For no power redundancy, connect one power supply to one power source.

- For n+1 redundancy, connect two power supplies to one or two power sources.

- For n+n redundancy, connect each of two power supplies to a different power source.

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.

c) Verify that the power supply is operational by checking that the power supply OK LED is green.

Replacing a DC Power Supply

You can replace a DC power supply during operations so long as there is another power supply installed and operating during the replacement. The switch requires only one power supply for operations, so you can hot swap the redundant power supply during operations. If there is only one power supply installed in the chassis, you can replace it by installing the new power supply in the open power supply slot and making it operational before removing the other power supply. The module number can be found on the chassis.

Warning **Statement 1034**—Backplane Voltage

Hazardous voltage or energy is present on the backplane when the system is operating. Use caution when servicing.

Before you begin

- Verify that you have an ESD wrist strap or other device to prevent ESD damage to the components that you touch.

- Verify that you have an antistatic surface or antistatic bag for placing the power supply module that you remove from the chassis.

• Verify that the replacement power supply module has the same direction of airflow as the other modules in the same chassis. Otherwise the switch can overheat and shut down.

• Verify that the circuit breaker for the DC power source is turned off.

Step 1   Attach an ESD wrist strap or other ESD device to your body and an earth ground to prevent ESD damage.

You can attach the ESD device to any earth ground or grounded object, such as a grounded rack or ground connection on a chassis.

Step 2   Verify that the DC power source is turned off at a circuit breaker.

Step 3   Remove the DC power supply that needs to be replaced as follows:

a) Turn off the circuit breaker for the power source to the power supply that you are replacing.

Verify that the OK LED turns off.

b) Unclip and remove the clear plastic cover that prevents access to the positive and negative terminals on the DC power supply.

c) Unfasten the positive power cable from the right terminal.

d) Unfasten the negative power cable from the left terminal.

e) Replace the clear plastic cover that prevents access to the terminals.

f) Press the thumb latch to disengage the power supply from the chassis and use the handle to pull it part way out of the chassis.

g) Place your other hand under the power supply to support it while you slide it out of the chassis. Place the power supply on an antistatic surface.

h) If the power supply bay is to remain empty, install a blank power supply filler panel (N2200-P-BLNK).

Step 4   Install the replacement DC power supply as follows:

a) Hold the replacement power supply by the handle and position it so that the thumb latch is on the right, and then slide it all the way into the power supply bay (the thumb latch will click), ensuring that the power supply is fully seated in the bay.

b) If there is a clear plastic cover that prevents your access to the terminals, unclip it and remove it from the chassis.

c) Fasten the negative cable to the left terminal.

d) Fasten the positive cable to the right terminal.

e) Clip the clear plastic cover over the terminals to prevent accidental touching of the terminals.

f) Turn on the power at the circuit breaker.

g) Verify the power supply operation by checking that the OK LED is green.

Replacing a High Voltage (HVAC/HVDC) Power Supply

You can replace an HVACHVDC power supply during operations so long as the other power supply provides power to the switch.

Before you begin

• The replacement power supply must have the same wattage and airflow direction as the power supply being replaced.

Note	You can determine the airflow direction by looking at the coloring of the latch on each power supply. The high voltage power supplies have either burgundy or red latches for port-side intake airflow or they have blue latches for port-side exhaust airflow.

- An HVAC/HVDC 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.

- There must be an earth ground connection to the chassis in which you are installing the replacement power supply. HVAC/HVDC power supplies connected to AC power sources are automatically grounded by their power cable when connected to the power supply and AC power source. HVAC/HVDC power supplies connected to DC power sources have Saf-D-Grid power cables with three connectors on the power source end--you connect one of those connectors to the earth ground.

Step 1 Remove an HVAC/HVDC power supply as follows:

a) 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.

b) 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.

c) Grasp the power supply handle while pressing the colored release latch towards the power supply handle.

d) 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 connections on the back side of the module and prevent anything else from coming into contact with and damaging the connectors.

Step 2 Install the replacement power supply as follows:

a) 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.

b) 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.

c) Attach the Saf-D-Grid end of the power cable to the electrical outlet on the front of the power supply.

d) Make sure that the other end of the power cable is attached to the appropriate power source for the power supply.

- For an HVAC power source, plug the other end of the power cable into the power source.

- For a HVDC power source, verify that the circuit breaker is turned off and then connect each of the three cable connectors to the appropriate DC and grounding terminals on the power source. If there is a cover plate for the DC terminals, install the plate to prevent accidental contact with the terminals.

e) If using an HVDC power source, turn on the circuit breaker for the power source.

f) Verify that the power supply is operational by making sure that the power supply LED is green.

Installing or Replacing a Line-Card Expansion Module (LEM)

The switch can operate with one or more Line-card Expansion Modules (LEMs) installed in the chassis. If there is at least one LEM installed and operating in the chassis, you can replace another LEM or install a new LEM in an empty slot.

Warning **Statement 1029--**Blank Faceplates and Cover Panels

Blank faceplates and cover panels serve three important functions: they prevent exposure to hazardous voltages and currents inside the chassis; they contain electromagnetic interference (EMI) that might disrupt other equipment; and they direct the flow of cooling air through the chassis. Do not operate the system unless all cards, faceplates, front covers, and rear covers are in place.

Warning **Statement 1034--**Backplane Voltage

Hazardous voltage or energy is present on the backplane when the system is operating. Use caution when servicing.

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.

Before you begin

- Wear electrostatic discharge (ESD) wrist strap or other ESD protective device while handling modules.

- Prepare an antistatic surface or packing materials for each module that you remove from the chassis.

Step 1 Open the packaging for the new LEM and inspect the module for damage.

For a damaged module, contact the Technical Assistance Center (TAC).

Step 2 If you are installing the module in a slot with a blank module, remove the blank module (NXM-XBLNK) that is already in that slot.

Step 3 If you are replacing a module that is currently in the chassis, remove the existing module from the chassis by following these steps:

Note Disconnect and label each of the interface cables from the module.

a) Press the latch down, to release the latch from the chassis as shown in the following figure.

b) Rotate the latch away from the module to disengage from the chassis as shown in the following figure.

c) Holding the latch release lever handle, pull the module out of the chassis as shown in the following figure.

Figure 12: Line-Card Expansion Module Latch Release Lever
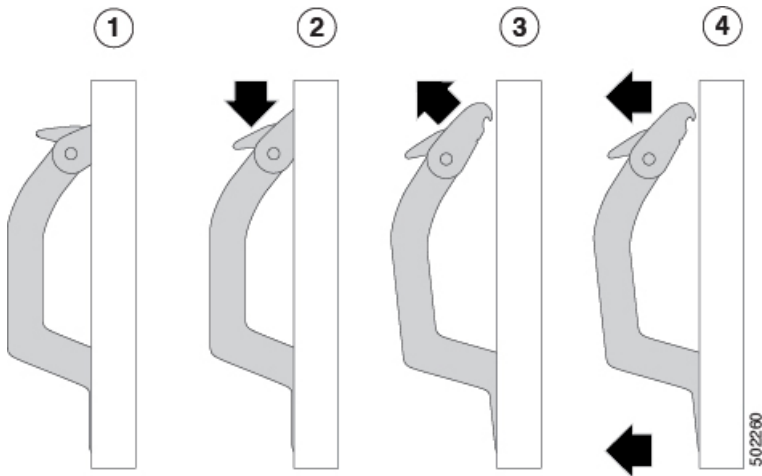
1	The module with a fully engaged release lever.	2	Press the latch down to release the latch from the chassis.
3	Rotate the latch away from the module to disengage from the chassis.	4	Pull the module out of the chassis.

Step 4 To install the module, follow these steps:

a) Hold the module with one hand and place your other hand under the module to support its weight

b) Align the module with the open slot and gently slide the module into the slot until it clicks into place.

Note   Attach each interface cable to the appropriate port on the module. Use the label on each cable to determine to which port each cable attaches.

Replacing a CPU Module

Power down the switch and unplug it before replacing the CPU module.

Warning   **Statement 1034--**Backplane Voltage

Hazardous voltage or energy is present on the backplane when the system is operating. Use caution when servicing.

Before you begin

- Wear electrostatic discharge (ESD) wrist strap or other ESD protective device while handling the module.

- Prepare an antistatic surface or packing materials for the module that you remove from the chassis.

Step 1   Open the packaging for the new CPU module and inspect the module for damage.

For a damaged module, contact the Technical Assistance Center (TAC).

Step 2   To remove the module follow these steps:
   a) Loosen the thumb screws that attach the fans to the chassis and remove two of the fan modules as shown in the following figure.
   b) Remove the screws (2) that attach the fan divider to the chassis and remove the fan divider as shown in the following figure.
   c) Carefully remove the CPU module as shown in the following figure.

Figure 13: CPU Module Replacement
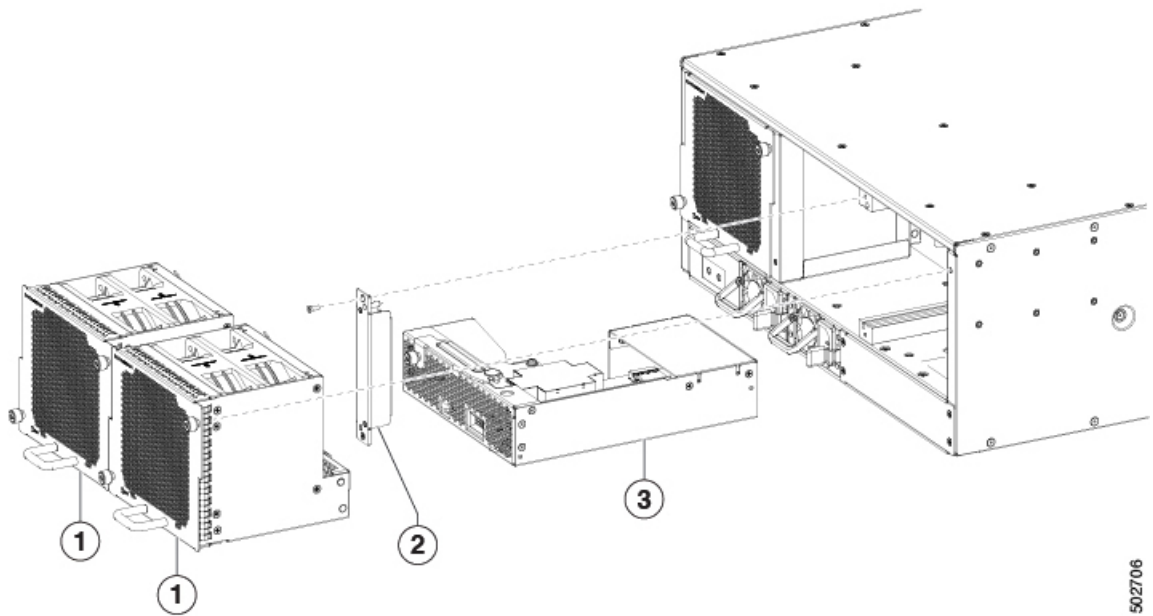
1	Fan modules.	2	Fan divider.
3	CPU modules.		

Step 3   To install the module, follow these steps:
   a) Hold the module with one hand and place your other hand under the module to support its weight.
   b) Align the module with the open slot and gently slide the module into the slot until it clicks into place.
   c) Install the fan divider and secure it with the screws (2).

    d)   Install the fan modules and tightening the thumb screws.

CHAPTER **6**

Managing the Switch

Displaying Information About the Installed Hardware Modules

You can display information about the switch hardware and the hardware modules that are installed in the switch by using the **show hardware** command.

```
switch# show hardwareCisco Nexus Operating System (NX-OS) Software
TAC support: http://www.cisco.com/tac
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http://opensource.org/licenses/gpl-3.0.html and
http://www.opensource.org/licenses/lgpl-2.1.php and
http://www.gnu.org/licenses/old-licenses/library.txt.

Software
  BIOS: version 05.35
 NXOS: version 9.2(1) [build 9.2(2z)IHP8(0.355)]
  BIOS compile time:  02/08/2019
  NXOS image file is: bootflash:///nxos.9.2.2z.IHP8.0.355.bin
  NXOS compile time:  4/9/2019 20:00:00 [04/09/2019 20:05:07]


Hardware
  cisco Nexus9000 N9K-C9408 Chassis
```

```
     Intel(R) Xeon(R) CPU D-1528 @ 1.90GHz with 32827712 kB of memory.
     Processor Board ID FOC23086N6A

     Device name: inno-fs1
     bootflash:  115343360 kB
  Kernel uptime is 0 day(s), 14 hour(s), 12 minute(s), 38 second(s)

  Last reset at 496687 usecs after 1555540049
     Reason: Reset Requested by CLI command reload
     System version: 9.2(1)
     Service:

  plugin
     Core Plugin, Ethernet Plugin
     ------------------------------
  Switch hardware ID information
  ------------------------------

  Switch is booted up
     Switch type is : Nexus9000 N9K-C9408 Chassis
     Model number is N9K-C9408
     H/W version is 0.0
     Part Number is 73-19248-01
     Part Revision is 1
     Manufacture Date is Year 2022 Week 8
     Serial number is FOC23086N6A
     CLEI code is 12345678


  -------------------------------------
  Chassis has 0 Module slots
  -------------------------------------
  Module1  ok
     Module type is : Supervisor
     0 submodules are present
     Model number is N9K-C9408
     H/W version is 0.0
     Part Number is 73-19248-01
     Part Revision is 1
     Manufacture Date is Year 2022 Week 8
     Serial number is FOC23086N6A
     CLEI code is 12345678


  --------------------------------------
  Chassis has 2 PowerSupply Slots
  --------------------------------------

  PS1 ok
     Power supply type is: 2000.00W 220v AC
     Model number is NXA-PAC-2KW-PI
     H/W version is 0
     Part Number is 341-1888-01
     Part Revision is A0
     Manufacture Date is Year 2022 Week 38
     Serial number is POG2238JA4S
     CLEI code is CMUPAFGCAA

  PS2 ok
     Power supply type is: 2000.00W 220v AC
     Model number is NXA-PAC-2KW-PI
     H/W version is 0
     Part Number is 341-1888-01
     Part Revision is A0
     Manufacture Date is Year 2022 Week 45
     Serial number is POG2245JA1C
```

```
   CLEI code is CMUPAFGCAA

---------------------------------
Chassis has 3 Fan slots
---------------------------------

Fan1 ok

Fan2 ok

Fan3 ok

switch#
```

Displaying the Hardware Inventory for the Switch

You can display information about the field replaceable units (FRUs), that are installed in the switch by using the **show inventory** command.

```
switch# show inventory
NAME: "Chassis",  DESCR: "Nexus9408 N9K-C9408 Chassis"
PID: N9K-C9408         ,  VID: V01 ,  SN: FOC23086N6A

NAME: "Switch Card",  DESCR: "Switch Card"
PID: N9K-C9400-SW-GX2A   ,  VID: V01 ,  SN: FDO262200E

1NAME: "Slot 1",  DESCR: "Supervisor"
PID: N9K-C9400-SUP-A       ,  VID: V01 ,  SN: FOC23086N6A

NAME: "LEM 1",  DESCR: "8x400G Ethernet Module"
PID: N9K-X9400-8D            ,  VID: V01 ,  SN: FOC223620GT

NAME: "LEM 2",  DESCR: "8x400G Ethernet Module"
PID: N9K-X9400-8D            ,  VID: V01 ,  SN: FOC224291Q8

NAME: "LEM 4",  DESCR: "8x400G Ethernet Module"
PID: N9K-X9400-8D            ,  VID: V01 ,  SN: FOC224291TA

NAME: "Power Supply 1",  DESCR: "Nexus9408 N9K-C9408 Chassis Power Supply"
PID: NXA-PAC-2KW-PI      ,  VID: V01 ,  SN: POG2238JA4S

NAME: "Power Supply 2",  DESCR: "Nexus9408 N9K-C9408 Chassis Power Supply"
PID: NXA-PAC-2KW-PI      ,  VID: V01 ,  SN: POG2245JA1C

NAME: "Fan 1",  DESCR: "Nexus9408 N9K-C9408 Chassis Fan Module"
PID: N9K-C9400-FAN-PI   ,  VID: V01 ,  SN: N/A

NAME: "Fan 2",  DESCR: "Nexus9408 N9K-C9408 Chassis Fan Module"
PID: N9K-C9400-FAN-PI   ,  VID: V01 ,  SN: N/A

NAME: "Fan 3",  DESCR: "Nexus9408 N9K-C9408 Chassis Fan Module"
PID: N9K-C9400-FAN-PI   ,  VID: V01 ,  SN: N/A

switch#
```

Displaying the Modules for the Switch

You can display information about the modules, that are installed in the switch by using the **show module** command.

```
switch# show module
Mod Ports         Module-Type                              Model                Status
--- ----- ------------------------------------ -------------------- ---------
1   0     Supervisor                               N9K-C9408-SUP-A      active *
27  0     Virtual Supervisor Module                N9K-C9400-SUP-A      active *

Mod  Sw                    Hw    Slot
--- ---------------------- ------ ----
1   10.3(2)                0.4    LC1
27  10.3(2)                0.4    SUP1

Mod  MAC-Address(es)                        Serial-Num
--- -------------------------------------- ----------
1   60-26-aa-48-c8-40 to 60-26-aa-48-c8-7f  FDO262208WX
27  60-26-aa-48-c8-40 to 60-26-aa-48-c8-7f  FDO262208WX

Mod  Online Diag Status
--- ------------------
1   Pass
27  Pass

* this terminal session
Lem Ports         Module-Type                              Model                Status
--- ----- ------------------------------------ -------------------- ---------
1   16    16x200G Ethernet Module                  N9K-X9400-8D         ok

2   8     8x400G Ethernet Module                   N9K-X9400-8D         ok

4   8     8x400G Ethernet Module                   N9K-X9400-16W        ok


Mod  Sw                    Hw    Slot
--- ---------------------- ------ ----
1   NA                     0.1010 LC1
2   NA                     0.1010 LC2
4   NA                     0.1010 LC4


Lem  MAC-Address(es)                        Serial-Num
--- -------------------------------------- ----------
1   0c-75-bd-37-2c-fe to 0c-75-bd-37-2d-1d  FOC223620GT
2   0c-75-bd-37-2d-1e to 0c-75-bd-37-2d-3d  FOC224291Q8
4   0c-75-bd-37-2d-5e to 0c-75-bd-37-2d-7d  FOC224291TA

Lem  Online Diag Status
--- ------------------
1   Pass
2   Pass
4   Pass
switch#
```

Displaying the Serial PROM (SPROM) for the Switch

You can display information about the SPROM, for the switch by using the **show sprom** command.

```
switch# show sprom backplane 1
DISPLAY backplane sprom contents:
Common block:
 Block Signature : 0xABAB
 Block Version   : 3
 Block Length    : 160
 Block Checksum  : 0x168E
 EEPROM Size     : 65535
 Block Count     : 3
 FRU Major Type  : 0x6002
 FRU Minor Type  : 0x0
 OEM String      : Cisco Systems, Inc
 Product Number  : N9K-C9408
 Serial Number   : FOC23086N6A
 Part Number     : 73-19248-01
 Part Revision   : 1
 Mfg Deviation   : 0
 H/W Version     : 0.0
 Mfg Bits        : 0
 Engineer Use    : 0
 snmpOID         : 9.12.3.1.3.1824.0.0
 Power Consump   : -6200
 RMA Code        : 0-0-0-0
 CLEI Code       : 12345678
 VID             : V01
Chassis specific block:
 Block Signature : 0x6001
 Block Version   : 3
 Block Length    : 39
 Block Checksum  : 0x419
 Feature Bits    : 0x0
 HW Changes Bits : 0x0
 Stackmib OID    : 0
 MAC Addresses   : 00-00-ab-cd-dc-ba
 Number of MACs  : 128
 OEM Enterprise  : 0
 OEM MIB Offset  : 0
 MAX Connector Power: 0
WWN software-module specific block:
 Block Signature : 0x6005
 Block Version   : 1
 Block Length    : 0
 Block Checksum  : 0x66
 wwn usage bits:
 00 00 00 00 00 00 00 00
 00 00 00 00 00 00 00 00
 00 00 00 00 00 00 00 00
 00 00 00 00 00 00 00 00
 00 00 00 00 00 00 00 00
 00 00 00 00 00 00 00 00
 00 00 00 00 00 00 00 00
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 00 00 00 00 00 00 00 00
 00 00 00 00 00 00 00 00
 00 00 00 00 00 00 00 00
```

```
       00 00 00 00 00 00 00 00
       00 00 00 00 00 00 00 00
       00 00 00 00 00 00 00 00
       00 00 00 00 00 00 00 00
       00 00 00 00 00 00 00 00
       00 00 00 00 00 00 00 00
       00 00 00 00 00 00 00 00
       00 00 00 00 00 00 00 00
       00 00 00 00 00 00 00 00
       00 00 00 00 00 00 00 00
       00 00 00 00 00 00 00 00
       00 00
License software-module specific block:
 Block Signature : 0x0
 Block Version   : 0
 Block Length    : 0
 Block Checksum  : 0x0
 lic usage bits:
 00 00 00 00 00 00 00 00
Second Serial number specific block:
 Block Signature : 0x0
 Block Version   : 0
 Block Length    : 0
 Block Checksum  : 0x0
 Serial Number   :
switch#
```

Displaying Environmental Information for the Switch

You can display information about the environment, for the switch by using the **show environment** command.

```
switch# show environment
Fan:
---------------------------------------------------------------------------
Fan             Model               Hw     Direction      Status
---------------------------------------------------------------------------
Fan1(sys_fan1)  N9K-C9400-FAN-PI    --     front-to-back  Ok
Fan2(sys_fan2)  N9K-C9400-FAN-PI    --     front-to-back  Ok
Fan3(sys_fan3)  N9K-C9400-FAN-PI    --     front-to-back  Ok
Fan_in_PS1      --                  --      front-to-back  Ok
Fan_in_PS2      --                  --      front-to-back  Ok
Fan Zone Speed: Zone 1: 0xff
Fan Air Filter : NotSupported


Power Supply:
Voltage: 12 Volts
Power                      Actual          Actual       Total
Supply    Model            Output          Input      Capacity       Status
                           (Watts )        (Watts )    (Watts )
-------   ----------   ---------------  ------  ----------  --------------------
1         NXA-PAC-2KW-PI       368 W             409 W      2000 W      Ok
2         NXA-PAC-2KW-PI       416 W             460 W      2000 W      Ok


Power Usage Summary:
--------------------
Power Supply redundancy mode (configured)           PS-Redundant
Power Supply redundancy mode (operational)          PS-Redundant

Total Power Capacity (based on configured mode)         2000.00 W
Total Grid-A (first half of PS slots) Power Capacity    2000.00 W
```

```
Total Grid-B (second half of PS slots) Power Capacity      2000.00 W
Total Power of all Inputs (cumulative)                     4000.00 W
Total Power Output (actual draw)                            784.00 W
Total Power Input (actual draw)                             869.00 W
Total Power Allocated (budget)                                  N/A
Total Power Available for additional modules                    N/A


Temperature:
----------------------------------------------------------------------
Module     Sensor          MajorThresh   MinorThres   CurTemp    Status
                           (Celsius)     (Celsius)    (Celsius)
----------------------------------------------------------------------
1          CPU             105           95           33         Ok
1          TeralynxM       110           90           26         Ok
1          TeralynxR       110           90           54         Ok
LEM-1      Local           110           90           35         Ok
LEM-1      Remote          110           90           28         Ok
LEM-2      Local           110           90           23         Ok
LEM-2      Remote          110           90           23         Ok
LEM-4      Local           110           90           25         Ok
LEM-4      Remote          110           90           25         Ok
switch#
```

Displaying Environment Temperature for the Switch

You can display information about the environment, for the switch by using the **show environment temperature** command.

```
switch# show environment temperature
how environment temperature
Temperature:
----------------------------------------------------------------------
Module     Sensor          MajorThresh   MinorThres   CurTemp    Status
                           (Celsius)     (Celsius)    (Celsius)
----------------------------------------------------------------------
1          CPU             105           95           34         Ok
1          TeralynxM       110           90           25         Ok
1          TeralynxR       110           90           54         Ok
LEM-1      Local           110           90           35         Ok
LEM-1      Remote          110           90           28         Ok
LEM-2      Local           110           90           23         Ok
LEM-2      Remote          110           90           23         Ok
LEM-4      Local           110           90           25         Ok
LEM-4      Remote          110           90           25         Ok
switch#
```

Rack Specifications

General Requirements and Guidelines for Cabinets and Racks

The cabinet or rack must have all of the following characteristics:

- Standard 19-inch (48.3 cm) four-post EIA cabinet or rack.

- Mounting rails that conform to English universal hole spacing per section 1 of ANSI/EIA-310-D-1992). See below.

The cabinet or rack must also meet the following requirements:

- The minimum vertical rack space per Cisco Nexus switch chassis must be one RU (rack units), 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.

- A minimum of 2.5 inches (6.4 cm) of clear space should exist between the side edge of the chassis and the side wall of the cabinet. No sizeable flow obstructions should be immediately in the way of chassis air intake or exhaust vents.

Note   To help with cable management, consider planning additional space in the rack or cabinet above and below the chassis to make it easier to route all of the fiber optic or copper cables through the rack.

About Requirements for Perforated Cabinets

A perforated cabinet has perforations in its front and rear doors and side walls. In addition to the requirements listed in the "General Requirements for Cabinets and Racks" section, 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.

About Requirements for Open Racks

In addition to the requirements listed in the "General Requirements for Cabinets and Racks" section on page A-1, 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 two rack units (RU), equal to 3.47 inches (8.8 cm).

- The horizontal distance between the chassis and any adjacent chassis should be 6 inches (15.2 cm), and the distance between the chassis air vents and any walls should be 2.5 inches (6.4 cm).

System Specifications

Environmental Specifications

Environment		Specification
Temperature	Ambient operating temperature	32 to 104°F (0 to 40°C)
	Ambient nonoperating	–40 to 158°F (–40 to 70°C)
Humidity	Ambient operating humidity	10 to 85%
	Ambient nonoperating	5 to 95%
Altitude	Ambient operating altitude	0 to 10,000 feet (0 to 3050 m)
	Ambient nonoperating	–1000 to 30,000 feet (–304 to 15,150 m)
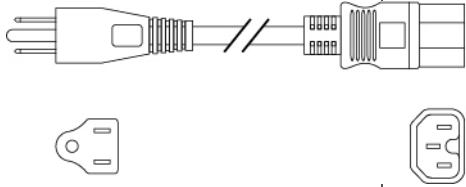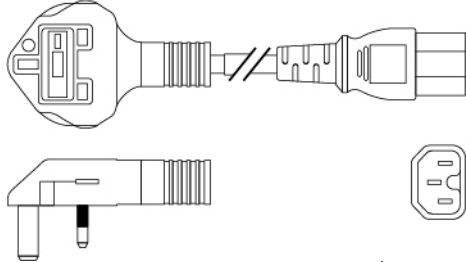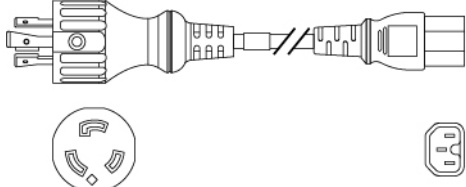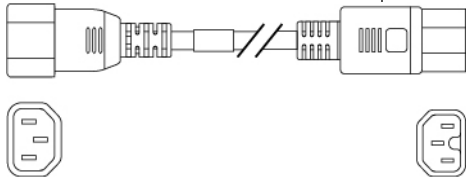
Switch Dimensions

Switch Component	Width	Depth	Height
Cisco Nexus 3408-S chassis	17.3 inches (43.9 cm)	31.6 inches (80.26 cm)	6.97 inches (17.7 cm) (4 RU)
Cisco Nexus 3432D-S chassis	17.29 inches (43.94 cm)	25.48 inches (64.74 cm)	1.72 inches (4.37 cm) (1 RU)

AC Power Cable Specifications

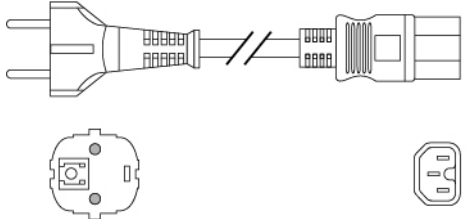| Cable	Description	Length
SFS-250V-10A-AR (Argentina)	250 VAC 10 A, IRAM 2073 plug	8.2 feet (2.5 m)
CAB-9K10A-AU (Australia)	250 VAC 10 A, 3112 plug	8.2 feet (2.5 m)
SFS-250V-10A-CN (China)	250 VAC 10 A, GB 2009 plug	8.2 feet (2.5 m)
CAB-9K10A-EU (Europe)	250 VAC 10 A, M 2511 plug	8.2 feet (2.5 m)
SFS-250V-10A-ID (South Africa, United Arab Emerits, and India)	250 VAC 16 A, EL-208 plug	8.2 feet (2.5 m)
SFS-250V-10A-IS (Israel)	250 VAC 10 A, SI-32 plug	8.2 feet (2.5 m)
CAB-9K10A-IT (Italy)	250 VAC 10 A, CEI 23-16 plug	8.2 feet (2.5 m)
CAB-9K10A-SW (Switzerland)	250 VAC 10 A, MP232 plug	8.2 feet (2.5 m)
CAB-9K10A-UK (United Kingdom)	250 VAC 10 A, BS1363 plug (13-A fuse)	8.2 feet (2.5 m)
CAB-AC-250V/13A (North America)	250 VAC 13 A, NEMA L6-20 plug	6.6 feet (2.0 m)
CAB-N5K6A-NA (North America)	250 VAC 10 A, NEMA 6-15 plug	8.2 feet (2.5 m)
CAB-9K12A-NA (North America)	125 VAC 13 A, NEMA 5-15 plug	8.2 feet (2.5 m)
CAB-C13-CBN	250 VAC 10 A, SS 10-A plug	8.2 feet (2.5 m)
CAB-C13-C14-2M	Cabinet Jumper Power Cord, 250 VAC 10 A, C13-C14 Connectors	6.6 feet (2 m)
CAB-C13-C14-AC	Cabinet Jumper Power Cord, 250 VAC 10 A, C13-C14 Connectors	9.8 feet (3 m)
CAB-C13-C14-JMPR	Cabinet Jumper Power Cord 250 VAC 13 A, C13-C14 Connectors	2.2 feet (0.7 m)
CAB-IND-10A	250 VAC 10 A, EL-208B plug	8.2 feet (2.5 m)

Power Cables for NXA-PAC-1100W Power Supplies

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

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

Power Cables for NXA-PAC-1500W Power Supplies

Cable	Description	Length	Weight
CAB-250V-10A-AR	Power Cord, 250VAC 10A IRAM 2073 Plug, Argentina	8.2 feet (2.5 m)	0.32 kg
CAB-9K10A-EU	Power Cord, 250VAC 10A CEE 7/7 Plug, EU	8.2 feet (2.5 m)	0.30 kg
CAB-9K10A-SW	Power Cord, 250VAC 10A MP232 Plug, Switzerland	8.2 feet (2.5 m)	0.28 kg
CAB-9K10A-AU	Power Cord, 250VAC 10A 3112 Plug, Australia	8.2 feet (2.5 m)	0.28 kg
CAB-9K10A-IT	Power Cord, 250VAC 10A CEI 23-16/VII Plug, Italy	8.2 feet (2.5 m)	0.26 kg
CAB-9K12A-NA	Power Cord, 125VAC 13A NEMA 5-15 Plug, North America	8.2 feet (2.5 m)	0.32 kg
CAB-TA-NA	Power Cord, 125VAC 12A, North America	8.2 feet (2.5 m)	0.40 kg
CAB-TA-UK	Power Cord, 250VAC 10A, United Kingdom	8.2 feet (2.5 m)	0.30 kg
CAB-TA-250V-JP	Power Cord, 250VAC 15A, Japan	8.2 feet (2.5 m)	0.38 kg

Cable	Description	Length	Weight
CAB-TA-EU	Power Cord, 250VAC 10A, Continental Europe	8.2 feet (2.5 m)	0.24 kg
CAB-C15-CBN	Jumper Cord, 250VAC 12A, United States, Canada, Australia	4 feet (1.22 m)	0.20 kg
CAB-TA-IN	Power Cord, 250VAC 10A, South Africa	8.2 feet (2.5 m)	0.28 kg
CAB-TA-IS	Power Cord, 250VAC 16A, Israel	8.2 feet (2.5 m)	0.26 kg
CAB-C15-CBN-JP	Power Cord, 250VAC 12A, Japan	9.84 feet (3 m)	0.38 kg
CAB-C15-CBN-EURA	Power Cord, 250VAC 13A, EU	9.84 feet (3 m)	0.26 kg
CAB-C15-CBN-CK	Power Cord, 250VAC 13A, China	9.84 feet (3 m)	0.32 kg
CAB-PWR-C15-CHN-A	Power Cord, 250VAC 10A, China	8.2 feet (2.5 m)	0.32 kg

DC Power Cable Specifications

Power Supply	Power Cord	Cord Set Description
All except Argentina, Brazil, and Japan	NO-POWER-CORD	No power cord included with switch

Note For N2200-PDC-350W-B or N2200-PDC-400W DC power supplies

The terminal block used (2-position) accepts wire sizes 22AWG-14AWG.

For the maximum input current of approximately 15A, a 18AWG wire meets minimum requirements. 16AWG adds some margin, and is recommended.

There is no earth ground connection on this input terminal block, thus the earth grounding is provided by the system being grounded.

HVDC Power Cable Specifications

Type	Power Cord Part Number	Cord Set Description
HVDC	CAB-HVDC-3T-2M	6.6-foot (2.0 m) cable with Saf-D-Grid and three terminal connectors

HVAC/HVDC Power Cable Specifications

Power Cord Part Number	Cord Set Description
CAB-AC-16A-SG-IS	Power cord, SI 16S3/Saf-D-Grid, 250 VAC 16A, Israel
CAB-AC-20A-SG-C20	Cabinet jumper power cord, 250 VAC, 20A, IEC C20/Saf-D-Grid, North America
CAB-AC-20A-SG-US	Power cord, 110 VAC 20A, Straight Blade, NEMA 5-20P/Saf-D-Grid, North America
CAB-AC-20A-SG-US1	Power cord, 125 VAC 20A, twist lock, NEMA L5-20/Saf-D-Grid, North America
CAB-AC-20A-SG-US2	Power cord, 250 VAC 20A, straight-blade, NEMA 6-20/Saf-D-Grid, North America
CAB-AC-20A-SG-US3	Power cord, 250 VAC 20A, twist lock, NEMA L6-20/Saf-D-Grid, North America
CAB-AC-16A-SG-IN	Power cord, IEC60309/Saf-D-Grid, 250 VAC 16A, International
CAB-AC-16A-SG-IT	Power cord, CEI 23-50/Saf-D-Grid to IEC-C19 250 VAC 16A, Italy
NO-POWER-CORD	No power cord included with switch

LEDs

Chassis LEDs

This table provides information about chassis LEDs for Cisco Nexus 3000 Series switches.

Component	LED	Status	Description
Chassis (front and back)	Beacon (BCN)	Flashing blue	The operator has activated this LED to identify this switch in the chassis.
	Identification (ID)	On (blue)	Identifies the chassis receiving the beacon signal.
	Management (MGMT)	Left side Off	This port has no physical link.
		Solid on (green)	This port has a physical link.
		Right side Off	This port has no activity.
		Blinking (green)	This port has activity.
	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.
	Status (STS)	Solid on (green)	All diagnostics pass. The module is operational.
		Off	The module is not receiving power.
		On (amber)	

Component	LED	Status	Description
			The module is booting or running diagnostics.
			The switch is overheating. The temperature threshold has been exceeded by a small value during environmental monitoring.
		Blinking (amber)	The switch has overheated. The temperature threshold has been exceeded by a large value during environmental monitoring.
			If the module fails during initial reset, the LED continues to blink and the module does not come online.
			The module has a runtime failure and is brought offline.

Fan LEDs

This table provides information about fan LEDs for Cisco Nexus 3000 Series switches.

Component	LED	Status	Description
Fan	Status	Solid on (green)	All diagnostics pass. The module is operational.
		Off	The module is not receiving power.
		Solid on (amber)	The module is booting or running diagnostics.
		Blinking (amber)	If the module fails during an initial reset, the LED continues to blink and the module does not come online. The module has a runtime failure and is brought offline.

Power Supply LEDs

This table provides information about power supply LEDs for Cisco Nexus 3000 Series switches.

Component	LED	Status	Description
Power supply	OK (green)	Solid on	Power supply is on and okay.
		Blinking	3.3 voltage standby (VSB) is on but the power supply unit is not powering the other modules.
		Off	No power to the power supply.
	FAULT (amber)	Solid on	Power supply failure, overvoltage, overcurrent, or overheating.
		Blinking	Power is present, 3.3 VSB on, and the power supply is off. PSU fan rotor is not functioning normally.
		Off	Operating normally.

Spare Parts Table

Spares Support Table

Product	Chassis Height (Rack Units)	Power Supply Options	Fan Options	Module Options	Accessory Kits
Nexus 3408-S	4 RU	AC port-side intake (NXA-PAC-2KW-PI) DC port-side intake (NXA-PDC-2KW-PI) HVAC/HVDC port-side intake (NXA-PHV-2KW-PI)	Port-side intake (NXA-FAN-300CFM-PI) Port-side intake (NXA-SFAN-300CFM-PI)[1]	Central processing unit (CPU) module (NXB-CPU-FRU} Line-card expansion module (LEM) (NXM-X16C) LEM (NXM-X4D)	Rack mount kit (N3K-C3408-RMK) Filler blank module (NXM-XBLNK)
Nexus 3432D-S	1 RU	AC port-side exhaust (NXA-PAC-1500W-PE) AC port-side intake (NXA-PAC-1500W-PI) HVAC/HVDC port-side intake (NXA-PHV-1100W-PI) HVAC/HVDC port-side exhaust (NXA-PHV-1100W-PE)	Port-side exhaust (NXA-FAN-35CFM-PE) Port-side intake (NXA-FAN-35CFM-PI)	N/A	Rack mount kit (N9K-C9300-RMK) Rack mount kit (C3850-RACK-KIT)) Rack mount kit (NXK-ACC-KIT-1RU)

[1] This fan is supported beginning with Cisco NX-OS Release 9.3(6). To enable or disable the display of the fan's serial number, enter the [**no**] **hardware fan-sprom** command.