



# Installing the Switch Chassis

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## Installing a Rack or Cabinet

Before you install the switch, you must install a standard four-post, 19-inch EIA data center rack (or a cabinet that contains such a rack) [Cabinet and Rack Requirements](#).

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

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

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

**Step 3** If you need access to the source power at the rack, include either AC power receptacles or a DC power interface unit (PIU) with the amperage required by the switch that you are installing. .

If you are using DC power, be sure that the DC power supply is grounded and that there is direct access to the facility DC power or indirect access through a power interface unit (PIU). You must connect the DC power supply to the earth ground before you connect it to the facility DC power.

**Note** Take care when connecting units to the supply circuit so that wiring is not overloaded.

**Note** If you are using the combined power mode or power-supply redundancy, you need only one power source. If you are using input-source redundancy or full redundancy, you need two power sources.

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## Unpacking and Inspecting a New Switch

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



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

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

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

The shipment should include boxes for the following:

- System chassis, which includes the following installed components:
  - 1 supervisor module
  - 1 I/O module
  - 1 fan tray
  - 1 to 2 power supply units
- Switch accessory kit  
To see a list of what is included in this kit, see .
- Cable management frames
  - Left and right side frames
  - Top and bottom hood frames
  - M4x14 mm flat-head Phillips screws (4)
- Front door kit — Optional
  - Front door (1) (69-100222-01)

- Air filter kit — Optional
  - Air filter (1) for the front door
  - Cable-management frame brush filters (2)
  - M3 x 12 mm flat-head Phillips screws (4)
- Center-mount kit — For Two-Post rack installation

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

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

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

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## Installing the Chassis in a Two-Post Rack

### Before you begin

- Verify that the chassis shipment is complete and undamaged.
- Verify that a two-post rack is installed and secured to the subfloor.



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

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- If there are other devices in the rack, verify that the devices that are heavier than this chassis are installed below where you are going to install the chassis and lighter devices are installed above where you are going to install the chassis.
- Verify that the data center ground is accessible where you are installing the chassis.



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**Note** Fully loaded, the chassis can weigh up to 81.7 lb (37.05 kg). You can lighten the chassis for easier moving by removing a power supply. To determine the full weight of the chassis and the appropriate weight rating for the mechanical lift, see [Weights and Quantities for the Chassis, Modules, Fan Trays, and Power Supplies](#).

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**Warning**

To prevent bodily injury when mounting or servicing this unit in a rack, you must take special precautions to ensure that the system remains stable. The following guidelines are provided to ensure your safety:

- This unit should be mounted at the bottom of the rack if it is the only unit in the rack.
- When mounting this unit in a partially filled rack, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.
- If the rack is provided with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack.

**Step 1**

If you need to make the chassis as light as possible for moving, you can optionally remove the fan tray and power supplies.

- To remove a power supply, follow these steps:
  - a. Push and hold the release handle on the power supply to the left.
  - b. Pull the power supply about two inches (about 5 cm) out of the chassis.
  - c. Place one hand under the power supply to support its weight and pull the power supply out of the chassis.
  - d. Place the power supply on an antistatic surface.
- To remove a fan tray, follow these steps:
  - a. Unscrew the two captive screws on the front of the fan tray.
  - b. Hold both handles on the fan tray with both of your hands and pull the fan tray out of the chassis.
  - c. Place the fan tray on an antistatic surface.

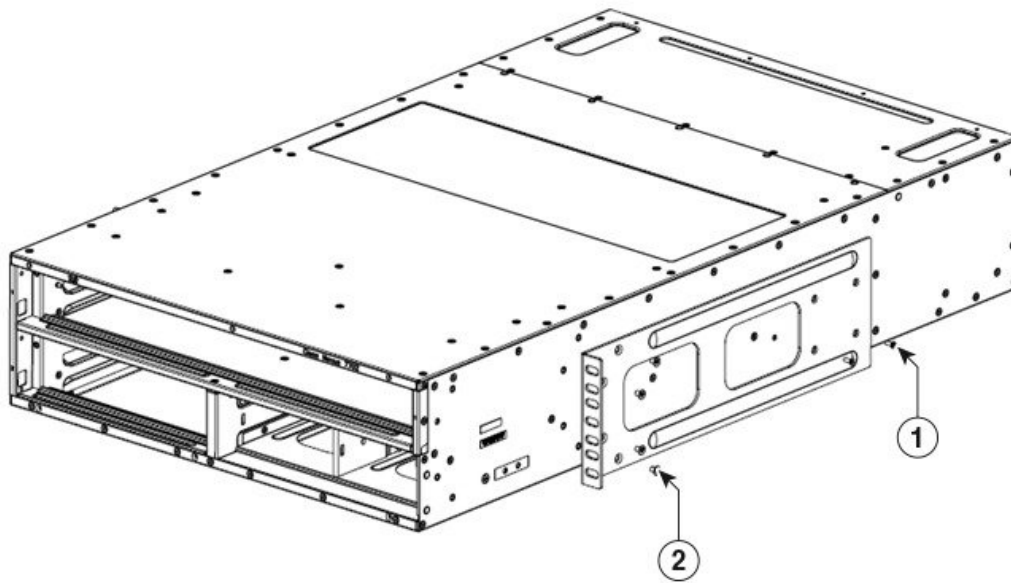
**Step 2**

Align the rear of the chassis to the front of the rack or cabinet.

**Step 3**

Push the chassis halfway onto the rack or cabinet.

Figure 1: Moving a Chassis onto a Rack or Cabinet



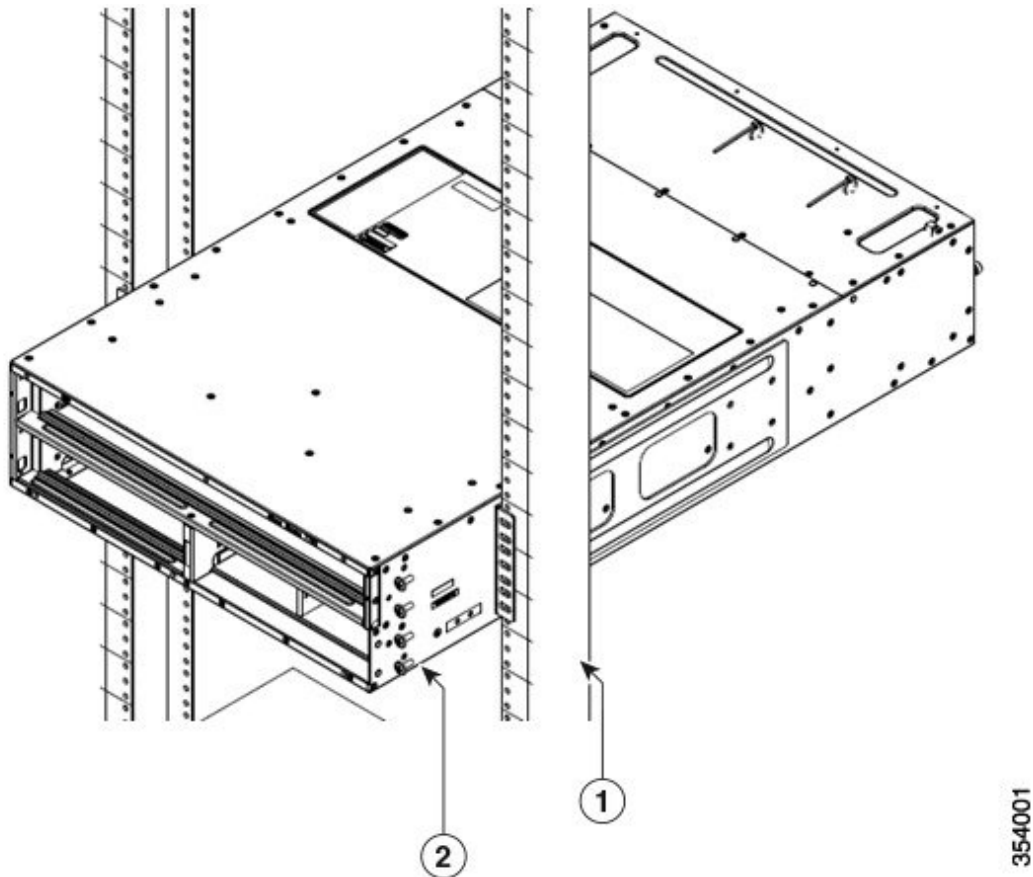
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1	Total of four M3 screws (for brackets on both sides).	2	Total of eight M4 screws (for brackets on both sides).
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**Step 4** Push the chassis all the way onto the rack so that the vertical mounting brackets on the chassis come in contact with the vertical mounting rails on the rack.

**Step 5** Use 2 center mount-brackets with eight M4 screws and two M3 screws to attach each of the two vertical mounting brackets on the chassis to the two vertical mounting rails on the rack. It is recommended to use a minimum of 8 screws (user preference from the accessory kit) on the front of the chassis to secure the chassis to the 2-post rack.

Figure 2: Attaching the Chassis to the Rack



1	Vertical mounting rails on the rack
2	Install a total of eight screws (user preference from the accessory kit) at the front to secure the chassis.

**Step 6** If you removed the fan tray before moving the chassis, reinstall each one in the chassis as follows:

- Holding each of the two handles on the fan tray with your two hands, align the fan tray to an open fan tray slot.
- Slide the fan tray into the slot until the front of the fan tray comes in contact with the rear of the chassis.

**Note** The two alignment pins on the fan tray (on the left and the right) should go into holes in the chassis and the two captive screws on the fan tray should align to screw holes in the chassis.

- Screw in the two captive screws to the chassis and tighten each screw to 8 in-lb (0.9 N·m).

**Step 7** If you removed any power supplies before moving the chassis, reinstall each one as follows:

- Determine which power supply slots to fill and ensure that each of those slots is open.

If you are using the combined or power supply redundancy mode, you can use any slot for the power supply that you are installing. If you are using the input-source or full redundancy mode, you must group the power supplies that are to be connected to the same grid on either the left or right power supply slots in the chassis.

- Place one hand on the front of the power supply and place your other hand under it to support its weight.
- Align the power supply to an open power supply slot.

**Note** The alignment bracket on top of the power supply should align to a track at the top of the slot and a bar at the bottom of the power supply should be guided by a track at the bottom of the slot.

- d) Slide the power supply all the way into the slot until its release handle clicks and the module stops.

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## Installing the Chassis on a Four-Post Rack or Cabinet

### Before you begin

- Verify that the chassis shipment is complete and undamaged.
- Verify that a rack or cabinet is installed and secured to the subfloor.



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

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- Verify that there is 3 RU (5.25 inches [13.3 cm]) of space above the rails to install the chassis.
- If there are other devices in the rack, verify that the devices that are heavier than this chassis are installed below where you are going to install the chassis and lighter devices are installed above where you are going to install the chassis.
- Verify that the data center ground is accessible where you are installing the chassis.



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**Note** Fully loaded, the chassis can weigh up to 81.7 lb (37.05 kg). You can lighten the chassis for easier moving by removing a power supply. To determine the full weight of the chassis and the appropriate weight rating for the mechanical lift, see [Weights and Quantities for the Chassis, Modules, Fan Trays, and Power Supplies](#).

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**Warning** To prevent bodily injury when mounting or servicing this unit in a rack, you must take special precautions to ensure that the system remains stable. The following guidelines are provided to ensure your safety:

- This unit should be mounted at the bottom of the rack if it is the only unit in the rack.
- When mounting this unit in a partially filled rack, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.
- If the rack is provided with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack.

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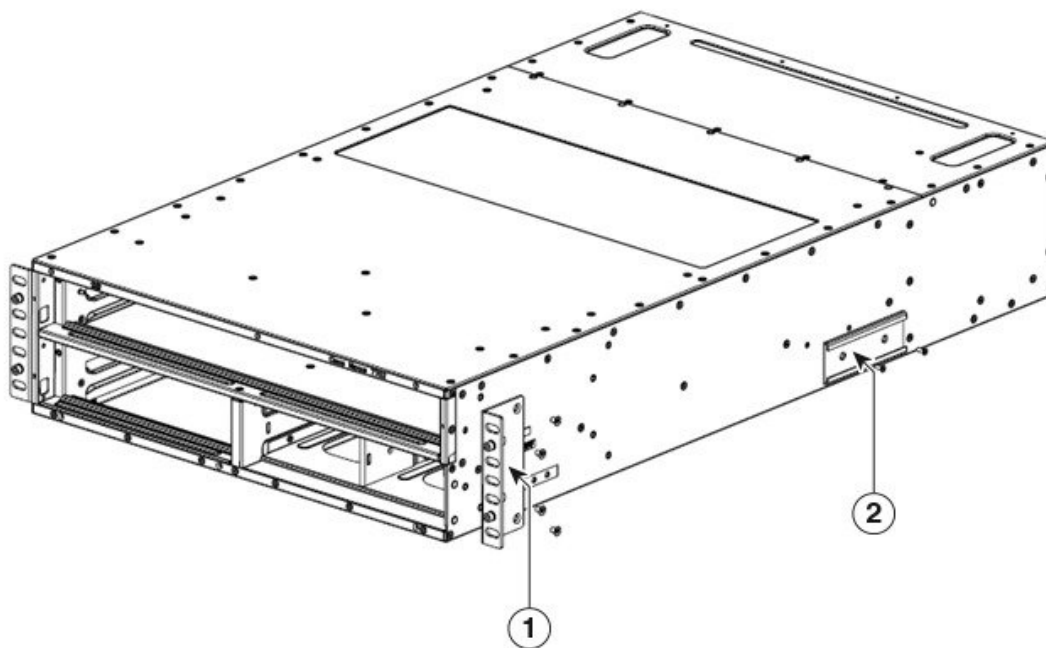
**Step 1** If you need to make the chassis as light as possible for moving, you can optionally remove the fan tray and power supplies.

- To remove a power supply, follow these steps:
  - a. Slide the handle in the middle of the ejector lever towards the end of the lever and rotate the lever away from the power supply.
  - b. Pull the power supply a couple of inches (about 5 cm) out of the chassis.
  - c. Place one hand under the power supply to support its weight and pull the power supply out of the chassis.
  - d. Place the power supply on an antistatic surface.
- To remove a fan tray, follow these steps:
  - a. Unscrew the two captive screws on the front of the fan tray.
  - b. Hold both handles on the fan tray with both of your hands and pull the fan tray out of the chassis.
  - c. Place the fan tray on an antistatic surface.

**Step 2** Prepare chassis by installing the front and side brackets.

**Step 3** Align the rear of the chassis to the front of the rack or cabinet.

**Figure 3: Moving a Chassis onto a Rack or Cabinet**



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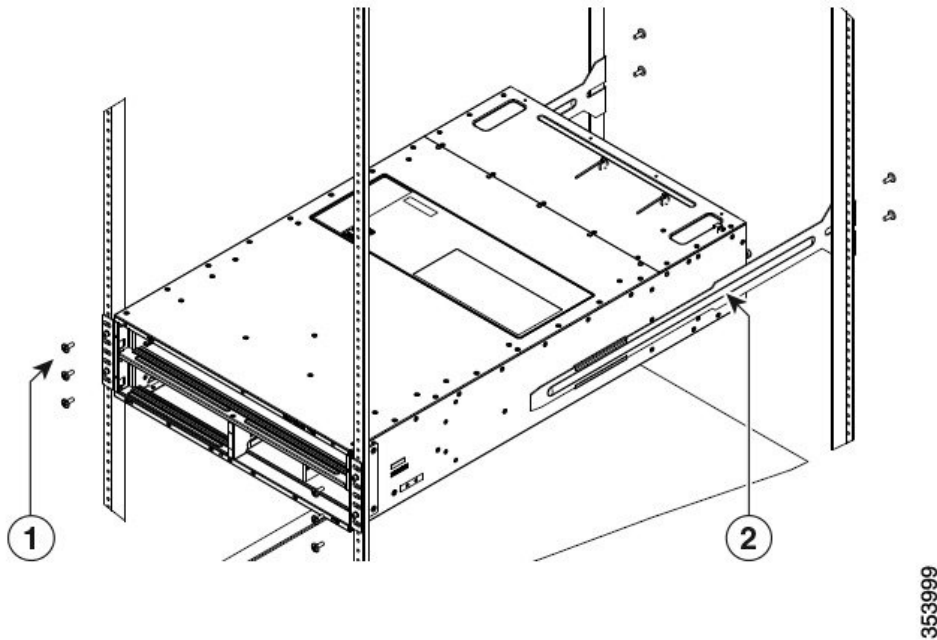
1	2 front mount brackets with eight M4 screws..
2	2 side C-shape brackets with four M3 screws.

**Step 4** Push the chassis all the way onto the rack so that the vertical mounting brackets on the chassis come in contact with the vertical mounting rails on the rack.



- Step 5** Use six screws (user preference from the accessory kit) at the front and four M3 screws at the back of the slide to secure the system chassis to the four-post rack

**Figure 4: Attaching the Chassis to the Rack**



1	Install six screws (user preference from the accessory kit) at the front.	2	Install 2 sliders to the C-shape bracket on each side of the chassis. Use four screws at the back of the slider to secure the chassis to the four-post rack.
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- Step 6** If you removed the fan tray before moving the chassis, reinstall each one in the chassis as follows:
- Holding each of the two handles on the fan tray with your two hands, align the fan tray to an open fan tray slot.
 

**Note** The two alignment brackets on top of the fan tray should align to two tracks at the top of the slot.
  - Slide the fan tray into the slot until the front of the fan tray comes in contact with the rear of the chassis.
 

**Note** The two alignment pins on the fan tray (on the left and the right) should go into holes in the chassis and the two captive screws on the fan tray should align to screw holes in the chassis.
  - Screw in the two captive screws to the chassis and tighten each screw to 8 in-lb (0.9 N·m).

- Step 7** If you removed any power supplies before moving the chassis, reinstall each one as follows:
- Determine which power supply slots to fill and ensure that each of those slots is open.
 

If you are using the combined or power supply redundancy mode, you can use any slot for the power supply that you are installing. If you are using input-source or full redundancy mode, you must group the power supplies that are to be connected to the same grid on either the left or right power supply slots in the chassis.
  - Place one hand on the front of the power supply and place your other hand under it to support its weight.
  - Align the power supply to an open power supply slot.
 

**Note** The alignment bracket on top of the power supply should align to a track at the top of the slot and a bar at the bottom of the power supply should be guided by a track at the bottom of the slot.

- d) Slide the power supply all the way into the slot until it stops.
- e) Slide the handle in the middle of the ejector lever toward the end of the lever and rotate the lever to the front of the power supply. Release the middle handle.

**Note** The lever should grab the inside of the slot and push the power supply onto its mid plane connectors.

- f) Screw in the two captive screws on the front of the power supply to the chassis. Tighten each screw to 8 in-lb (0.9 N·m).

## Grounding a Switch Chassis

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

- You connect the chassis to either a fully-bonded, grounded rack or to the data center ground.



**Note** The system ground, also referred to as the network equipment building system (NEBS) ground, provides additional grounding for EMI shielding requirements and for the low-voltage supplies (DC-DC converters) on the modules. This grounding system is active even when the AC and HVAC/HVDC power cables are not connected to the system.

- You connect the AC and HVAC/HVDC power supplies to the earth ground automatically when you connect an AC or HVAC/HVDC power supply to an AC or HVAC/HVDC power source.

### 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 connecting its grounding pad to the rack. Otherwise, you must connect the chassis grounding pad directly to the data center ground.

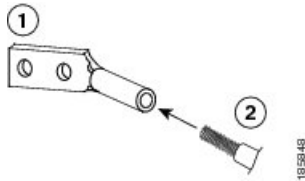
To connect the switch chassis to the data center ground, you need the following tools and materials:

- Grounding lug—A two-holed standard barrel lug that supports up to 6 AWG wire. This lug is supplied with the accessory kit.
- Grounding screws—Two M4 x 8 mm (metric) pan-head screws. These screws are shipped with the accessory kit.
- Grounding wire—Not supplied with the accessory kit. This wire should be sized to meet local and national installation requirements. Depending on the power supply and system, a 12 AWG to 6 AWG copper conductor is required for U.S. installations. We recommend that you use commercially available 6 AWG wire. The length of the grounding wire depends on the proximity of the switch to proper grounding facilities.
- Number 1 manual Phillips-head torque screwdriver.

- Crimping tool to crimp the grounding wire to the grounding lug.
- Wire-stripping tool to remove the insulation from the grounding wire.

- Step 1** Use a wire-stripping tool to remove approximately 0.75 inch (19 mm) of the covering from the end of the grounding wire.
- Step 2** Insert the stripped end of the grounding wire into the open end of the grounding lug as shown in the following figure.

**Figure 5: Inserting a Grounding Wire in a Grounding Lug**



1	NRTL listed 45-degree grounding lug	2	Grounding cable with 0.75 in. (19 mm) of insulation stripped from one end
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- Step 3** Use the crimping tool to crimp the lug to the grounding wire. Verify that the ground wire is securely attached to the grounding lug by attempting to pull the wire out of the crimped lug.
- Step 4** Secure the grounding wire lug to the grounding pad with two M4 screws, and tighten the screws to 11.5 to 15 in-lb (1.3 to 1.7 N·m) of torque.
- Step 5** 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.

## Installing Cable Management Frames onto the Chassis

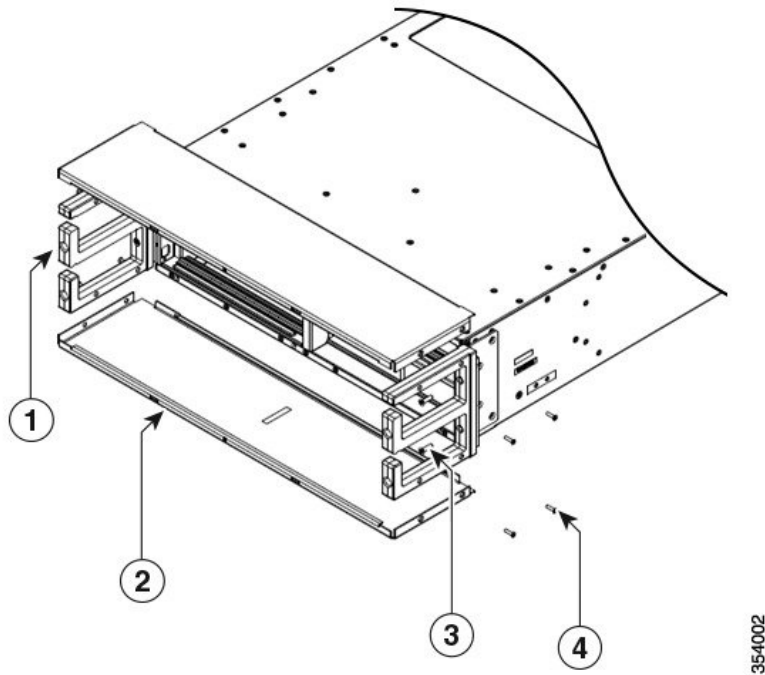
### Before you begin

- The chassis must be installed and secured to the rack.
- You must have the following tools and equipment:
  - Manual Phillips screwdriver with torque capability (customer supplied).
- The following frames and screws (shipped with the switch):
  - Two cable management side frames
  - One cable management top hood frame
  - One cable management bottom hood frame
  - Two M4 and four M3 screws.

**Step 1** Attach the two cable management frames to the chassis as follows:

- Position one of the cable management side frame assemblies on the vertical mounting bracket attached to one side of the front of the chassis.
- Secure the cable management frame with two M4 screws. (see the following figure).

• **Figure 6: Attaching a Cable Management Assembly to the Chassis**



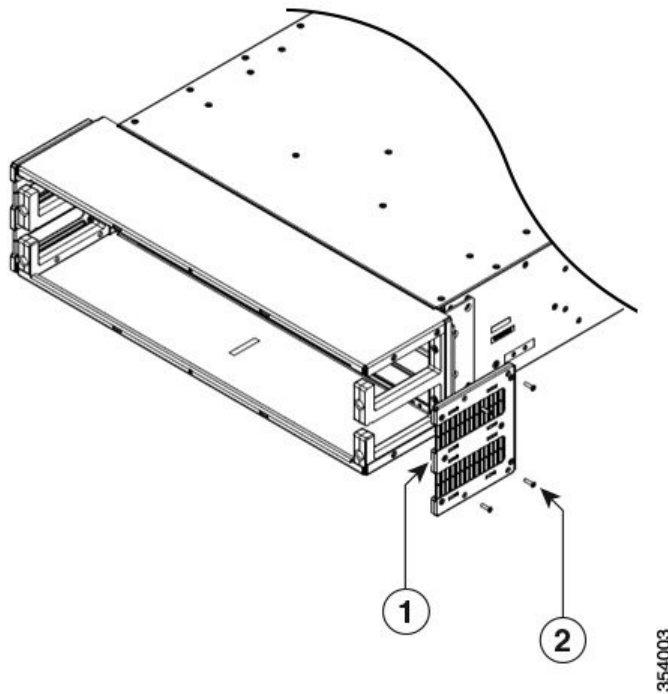
1	Cable management side frame	3	Two M4 screws to secure the cable management frame to front mounting bracket on chassis.
2	Cable management bottom hood frame	4	Four M3 screws to secure top and bottom hood frames to the chassis.

- Repeat Steps 1a through 1b to attach the other cable management frame.
- Place the top and bottom hood frame as shown in the figure. Secure the hood frames with four M3 screws.

**Step 2** Attach the side filter to the cable management assembly as follows:

- Remove 4 M3 screws as shown in the figure.

*Figure 7: Attaching the Top Hood to the Chassis and Cable Management Assemblies*



1	Side filter assembly
2	Four M3 screws to secure the side filter to the cable management assembly.

- b) Attach the side filter assembly to the cable management assembly.
- c) Use the 4 M3 screws to secure the side filter to the cable management assembly.
- d) Repeat Steps 2a through 2c to attach the side filter assembly on the other side of the cable management assembly.

### What to do next

You are ready to attach the optional door to the cable management frames.

## Attaching the Front Door to the Chassis

Before installing the front door to the chassis, you must install an air filter to the front door.

### Before you begin

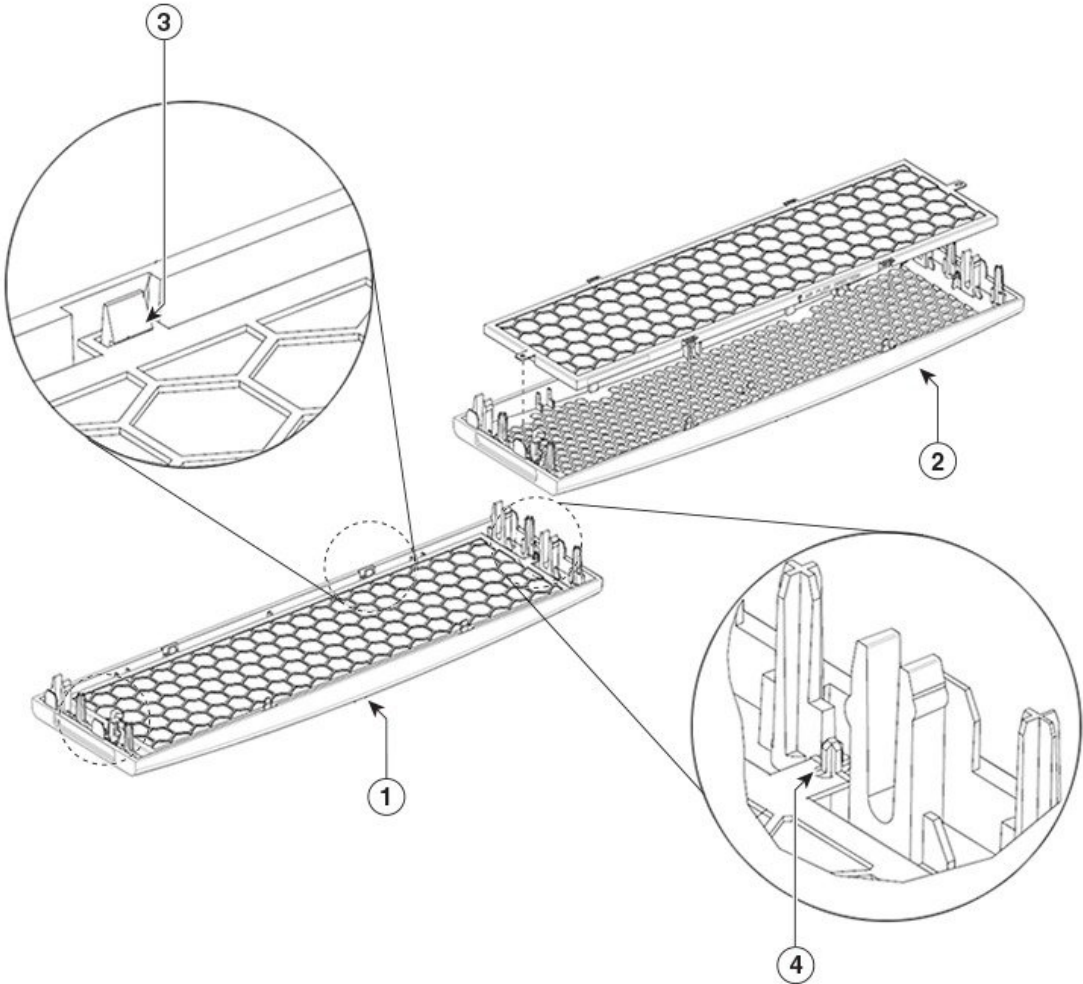
- Verify that the cable management frames are attached to the chassis.
- Verify that you have the following tools and equipment:
  - Optional front door kit

- Number 1 manual Phillips torque screwdriver

**Step 1** Install the air filter to the front door as follows:

- Attach the air filter to the front door by aligning the plastic guides on the air filter with the slot holes on the front door.

**Figure 8: Attaching the Air Filter to the Front Door**



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1	Front door.	3	Snap fit hook on the front door for air filter.
2	Air filter.	4	Slot hole on the front door for air filter.

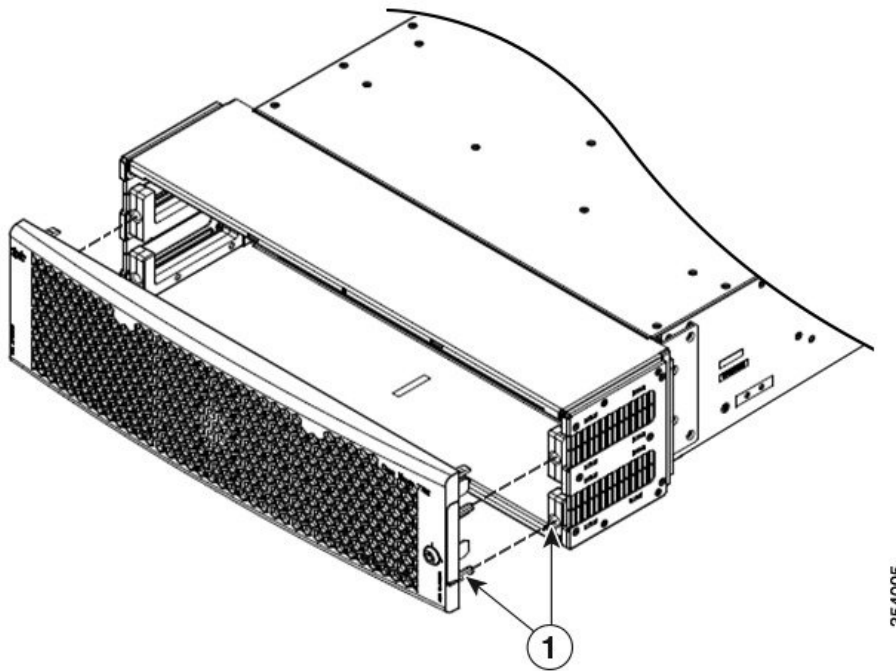
- Secure the air filter to the front door by pushing the air filter beyond the plastic snap fit hook on the front door.

**Note** We recommend that you change the air filter every 3 months. However, examine the air filter once a month (or more often in dusty environments) and replace it if it appears to be excessively dirty or damaged. To comply with Telecordia GR-63-Core standard air filter requirements for NEBS deployments, the air filter must be replaced, not cleaned.

**Step 2** Attach the front door as follows:

- a) Place the front door on the chassis by aligning the guidepins on the front door with the slot holes on the cable management assembly.

**Figure 9: Placing the Door on the Cable Management Frames**



1	Align the guidepins on the front door with the slot holes on the cable management assembly.
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- b) Push to snap fit the front door to the cable management assembly.

