Installation Job Aid for Avaya Virtual Services Platform 8400

Release 4.2
NN47227-305
Issue 01.06
June 2015

Support

Go to the Avaya Support website at http://support.avaya.com for the most up-to-date documentation, product notices, and knowledge articles. You can also search for release notes, downloads, and resolutions to issues. Use the online service request system to create a service request. Chat with live agents to get answers to questions, or request an agent to connect you to a support team if an issue requires additional expertise.

Safety messages

Caution:

To protect the switch against ESD damage, take the following measures before you connect data cables to the device:

- Always use antistatic wrist straps. Make sure you adjust the strap to provide good skin contact.
- Ensure that you properly ground work surfaces and equipment racks for protection against electrostatic discharge. You must connect the common point to the building ground wire. In a properly wired building, the nearest reliable ground is typically at the electrical outlet.
- Avoid contact between equipment and clothing. The wrist or ankle strap protects only the equipment from ESD voltages on the body; ESD voltages on clothing can still cause damage.
- Avoid touching any connector pins.
- Do not remove the wrist or ankle strap until the installation is complete.

Caution:

When you mount this device in a rack, do not stack units directly on top of one another. You must secure each unit to the rack with appropriate mounting brackets. Mounting brackets cannot support multiple units.

Caution:

If you are not installing a redundant power supply in the slot, be sure to keep the metal cover plate in place over the slot. Removing the cover plate impedes airflow and proper cooling of the unit.

Warning:

Disconnecting the power cord is the only way to turn off power to this device. Allow at least 30 seconds for the this device to fully power down before restoring power. Otherwise, this device might produce a core file during the reset leading to an extra delay during boot time.

Danger:

Use only power cords that have a grounding path. Without a proper ground, a person who touches the switch is in danger of receiving an electrical shock. Lack of a grounding path to the switch can result in excessive emissions.

Warning:

The lithium battery is not field replaceable. It should be removed and replaced by authorized personnel only. Contact Avaya Technical Support for assistance if the battery requires replacement.

Warning:

Fiber optic equipment can emit laser or infrared light that can injure your eyes. Never look into an optical fiber or connector port. Always assume that fiber-optic cables are connected to a light source.

Technical specifications

The following table provides the technical specifications for the individual switches in this series. Ensure that the area where you install the switch and where it operates meets these requirements.

Warning:

To avoid bodily injury from hazardous electrical shock and current, never remove the top of the device. No user-serviceable components are inside.

Table 1: Physical specifications

Height	3.5 in. (88.9 mm) - 2U
Width	17.5 in. (444.5 mm) - 19” rack mountable
Depth	26.5 in. (673 mm)
Weight of VSP 8404 (EC8400x01-E6)	33.35 lb (15.13 kg) - Weight includes fan trays only (no power supplies or Ethernet Switch Modules)
Weight of spare AC power supply unit (EC8005x01-E6)	1.9 lb (0.862 kg)

Table 2: Electrical specifications

Power consumption	200 W with no Ethernet Switch Modules, 800 W (max) with Ethernet Switch Modules
Thermal rating	682.4 BTU/hr with no Ethernet Switch Modules, 2729.7 BTU/hr with Ethernet Switch Modules

Table 3: Environmental specifications

Operating Temperature	0°C to 50°C (32°F to 122°F)
Storage Temperature	–40°C to 85°C (-40°F to 185°F)
Operating Humidity	0 to 95 percent noncondensing
Storage Humidity	0 to 95 percent noncondensing
Maximum Operating Altitude	3,048m (10 000 feet) above sea level
Storage Altitude	0 to 12,192m (0 to 40,000ft) above sea level
Miscellaneous Operating Considerations	• No heat sources such as hot air vents or direct sunlight near the switch. • No sources of severe electromagnetic interference near the switch. • No excessive dust in the environment. • An adequate power source is within 6 feet (1.83 meters) of the switch. One 15-amp circuit is required for each power supply. • At least 2 inches (5.08 centimeters) of clearance on the front and back of the switch for ventilation. • Cables should be dressed to prevent blocking air flow.

Installing an Ethernet Switch Module

Install an Ethernet Switch Module to replace an existing module or to add new capability. The switch has four bays and you can choose any one of them to install a module. The switch detects where the modules are installed so the order is not important.

You can also install a new module or hot swap an existing module while the switch is operational.

Before you begin

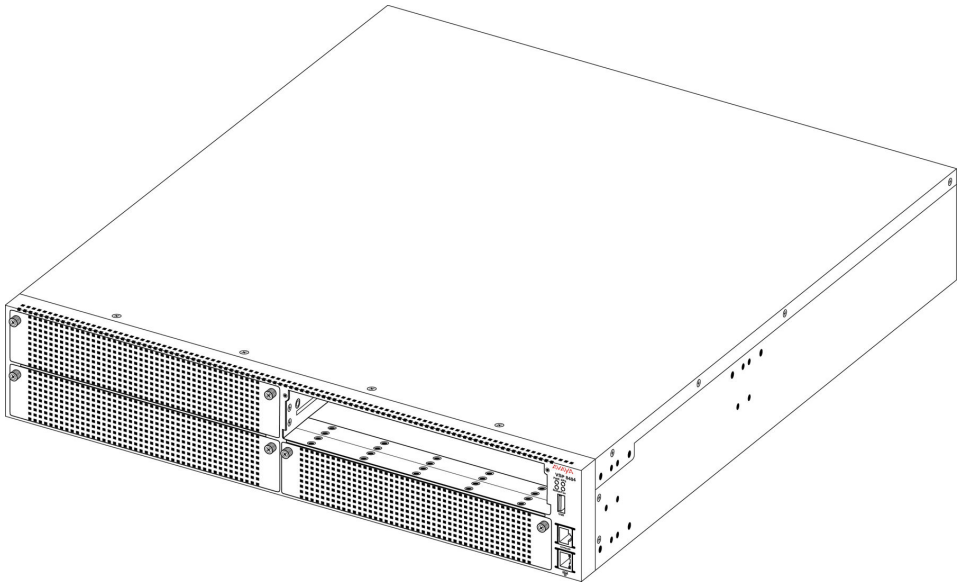
To prevent damage, handle the modules carefully by using the following guidelines:

- To prevent damage from electrostatic discharge, always wear an antistatic wrist strap connected to an ESD jack.
- Always place the modules on appropriate antistatic material.
- Support the module from underneath with two hands. Do not touch components or connector pins with your hand, or damage can result.
- Visually inspect the connectors for damage before you insert the module. If you insert a module with damaged connectors you will damage the switch.

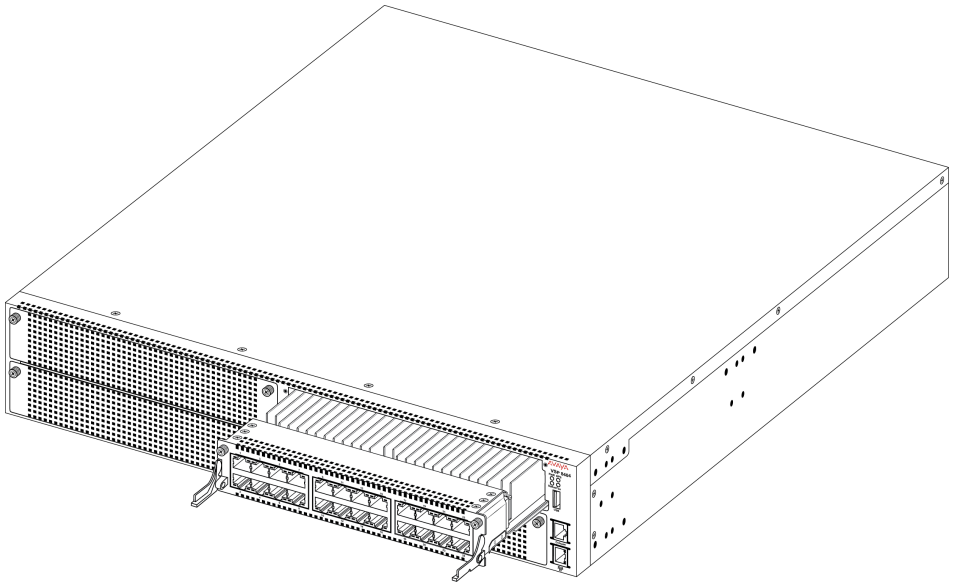
- Do not stack modules one on top of the other when you move them.
- Do not leave bays open. Fill all bays with modules or module bay covers to maintain safety compliance, proper cooling, and EMI containment.
- Do not over tighten screws. Tighten until snug. Do not use a power tool to tighten screws.

Procedure

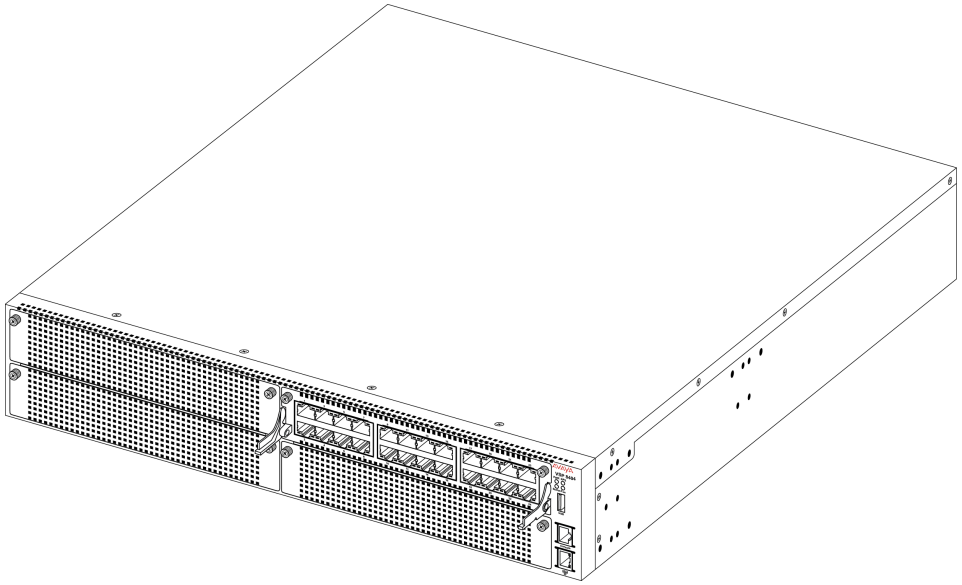
1. Remove the two screws that secure the module bay cover to the chassis. (Save the module bay cover for possible future use.)



2. Slide the module into the bay.



3. Apply gentle pressure anywhere on the faceplate to fully insert the module, and then screw the module in to ensure a good connection and to secure it to the chassis.



The levers are in the position shown when the module is inserted into the chassis. If you have to remove a module, loosen the two screws that secure the module to the chassis and then rotate the extraction levers up to eject the module. Remove the module, and then either install another module or replace the module bay cover

Important:

You must have either a module or a module bay cover in each bay to ensure proper ventilation. Leaving a module bay unpopulated or uncovered impairs the ability of the fans to cool the chassis.

Installing a power supply

The VSP 8404 ships with a power supply, but it is not installed in the chassis. Refer to the following procedures to install a power supply:

- Installing an AC power supply
- Installing a DC power supply

There are two power supply slots (PSU1 on top and PSU2 on the bottom).

- If you only have one power supply, you can install it in either PSU1 or PSU2.
- If you install a second power supply, neither one acts as a primary power supply. The two power supplies load share equally.

Installing an AC power supply

The VSP 8404 supports two field-replaceable 800 W power supplies. One comes with the switch and you can install a second power supply to provide redundancy and load sharing.

Before you begin

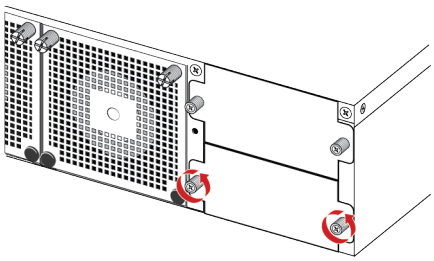
- Remove the power cord before installing or removing the power supply.

Note:

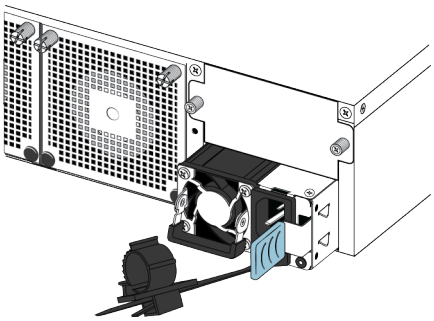
The design of the latch mechanism that secures the power supply enforces this safety practice.

Procedure

1. Loosen the two screws that secure the power supply cover to the chassis. (Save the power supply cover for possible future use.)



2. Slide the power supply into the slot.



3. Verify that the power supply is fully seated in the slot. The spring latch should engage and return to its original position.

Note:

The chassis design prevents an incorrect installation of a power supply. If you insert a power supply upside down, it will not fully insert.

4. Once you install a power supply, you can connect the AC power cord to the power supply on the back of the switch, and then connect the cord to an AC power outlet.

Important:

The VSP 8404 does not have an AC power switch. When you connect the power cord to a power supply and connect the cord to an AC power outlet, the switch powers up immediately.

Warning:

Disconnecting the AC power cord is the only way to turn off AC power to the VSP 8404. Allow at least 30 seconds for the switch to fully power down before restoring power. Otherwise, the switch might produce a core file during the reset leading to an extra delay during boot time. Always connect the AC power cord in a location that is quickly and safely accessible in case of an emergency.

5. Check the LED on the bottom right side of the power supply. Solid green indicates that power is operating normally. If it's off, check the connections.

Important:

You can hot swap power supplies while the switch is operational. One power supply is required for continued switch operation.

AC power supply specifications

The VSP 8404–AC comes with an 800 W AC power supply and you can install a secondary power supply for redundancy.

Important:

You must have either a power supply or a power supply cover in each bay to ensure proper ventilation. Leaving a power supply bay unpopulated or uncovered impairs the ability of the fans to cool the chassis.

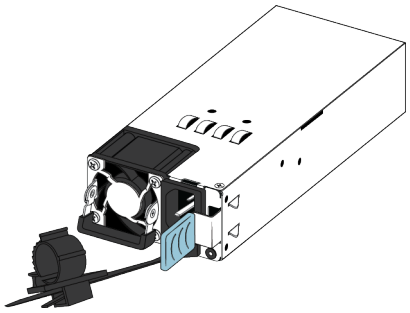


Figure 1: AC power supply

The 800 W AC power supply uses an IEC 60320 C16 AC power cord connector. The AC power cord is in close proximity to the hot air exhaust, and supports high operating temperatures.

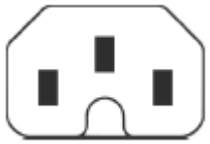


Figure 2: IEC 60320 C16 connector

The following table describes the regulatory AC power specifications for the VSP 8404 switch. Note that regulatory power specifications are based on the maximum rated capacity of the power supplies and are not based on typical power consumption, which is typically lower.

Table 4: AC power specifications

	VSP 8404–AC
Input Current:	9.9–4.79 A
Input Voltage (rms):	100–240 V, 47–63 Hz
Power Consumption:	800 W maximum
Thermal Rating:	2730 BTU/Hr maximum
Inrush Current:	40 A maximum
Turn on Condition:	1 second maximum after application of AC power
Important: 12 V output rise time, from 10 to 90 percent, must be the maximum of 50 ms and monotonic under all defined input and output conditions.	
Efficiency:	70 percent minimum

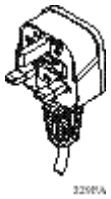
AC power cord specifications

To connect AC power to the switch, you need an appropriate AC power cord as described in the following table, also see the following table for plug specifications.

Table 5: International power cord specifications

Country and Plug Specification	Specifications	Typical Plug
Continental Europe: • CEE7 standard VII male plug • Harmonized cord (HAR marking on the outside of the cord jacket to comply with the CENELEC Harmonized Document HD-21)	• 220 or 230VAC • 50 Hz • Single phase	
United States of America, Canada, and Japan: • NEMA5-15P male plug • UL-recognized (UL stamped on cord jacket)	• 100 or 120VAC • 50–60 Hz • Single phase	

Table continues…

Country and Plug Specification	Specifications	Typical Plug
• CSA-certified (CSA label secured to the cord)		
United Kingdom: • BS1363 male plug with fuse • Harmonized cord	• 240VAC • 50 Hz • Single phase	
Australia: • AS3112-1981 male plug	• 240VAC • 50 Hz • Single phase	

Danger:

Using power cords with a proper grounding path

Use only power cords that have a grounding path. Without a proper ground, a person who touches the switch is in danger of receiving an electrical shock. Lack of a grounding path to the switch can result in excessive emissions.

Installing a DC power supply

Important:

Avaya does not support installing a combination of AC-input and DC-input power supplies in the same chassis.

The VSP 8404 supports two field-replaceable 800 W power supplies. One comes with the switch and you can install a second power supply to provide redundancy and load sharing.

Before you begin

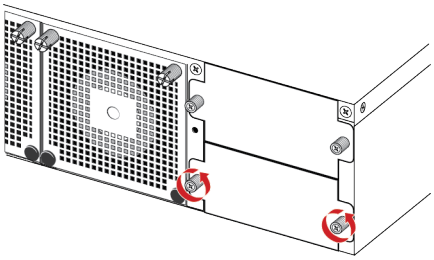
- Remove the DC power supply wiring assembly before installing or removing the power supply.

  Note:

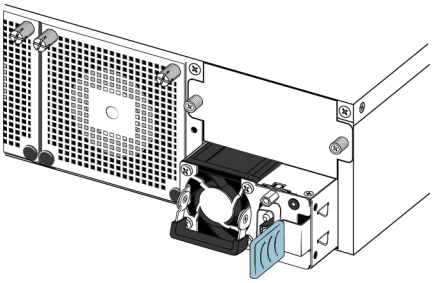
  The design of the latch mechanism that secures the power supply enforces this safety practice.

Procedure

1. Remove the two screws that secure the filler panel to the chassis. (Save the filler panel for possible future use.)



2. Slide the power supply into the slot.



3. Verify that the power supply is fully seated in the slot. The spring latch should engage and return to its original position.

Note:

The chassis design prevents an incorrect installation of a power supply. If you insert a power supply upside down, it will not fully insert.

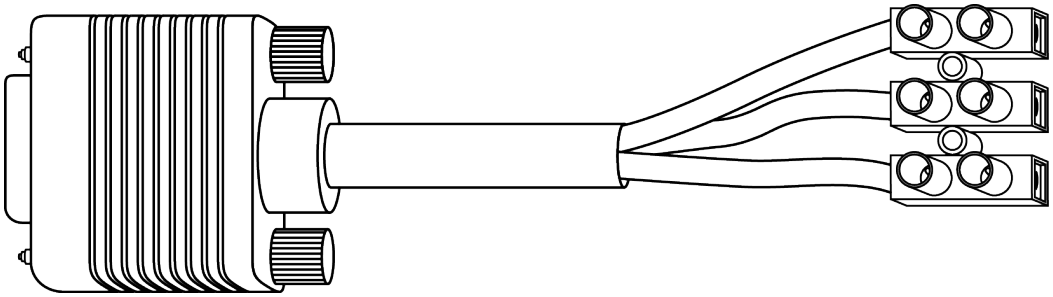
Important:

The VSP 8404 does not have a power switch. When you connect the DC power source to the DC power supply wiring assembly and then plug the assembly into the DC power supply, the switch powers up immediately.

Warning:

Disconnecting the DC power supply wiring assembly from the power supply is the only way to turn off DC power to the VSP 8404. Allow at least 30 seconds for the switch to fully power down before restoring power. Otherwise, the switch might produce a core file during the reset leading to an extra delay during boot time.

4. Once you install a power supply, use the following steps to connect the DC power supply wiring assembly:
    a. Avaya supplies a DC power supply wiring assembly to connect the DC power supply to the DC input power source.

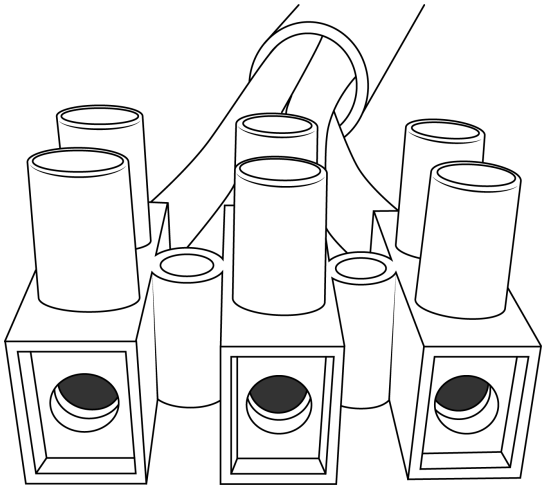


    b. Strip 0.8 in. (2 cm) of insulation from the ends of the power source cables.
    c. Refer to the tag attached to the DC power supply wiring assembly to insert the cables into their appropriate connectors.

Voltage:

Ensure that the positive and negative power inputs are connected to the correct connectors and that the switch is properly grounded before connecting it to a power source.

    d. Use a screwdriver to crimp the cables to the DC power supply wiring assembly.



    e. Use a screwdriver to terminate the three raw wires to a DC power source.
    f. Connect the DC power supply wiring assembly to the DC power supply and screw it in to secure the connection.
5. Check the LED on the top right side of the power supply. If it is off, the power supply is not operating. If it is green, the power supply is operating normally. The following table describes all the LED states.

Table 6: DC power supply LED states

Color and Status	Description
Off	There is no DC power to either power supply.
Green (steady)	There is output and the power supply is operating normally.
Green (blinking)	The power supply is present, but its output is standby voltage (12VSB).
Amber (steady)	SHUTDOWN: The power supply is not supplying power to the switch because the power cord is unplugged or the power supply shutdown for faults such as a fan failure or exceeding limits for Over Current Protection (OCP) or Over Voltage Protection (OVP).
Amber (blinking)	WARNING: The power supply continues to operate, but there are one or more warning events such as high temp, high power, high current, or a slow fan.

Important:

You can hot swap power supplies while the switch is operational. One power supply is required for continued switch operation.

DC power supply specifications

The VSP 8404–DC comes with one 800 W DC power supply and you can install a secondary power supply for redundancy.

Important:

You must have either a power supply or a power supply cover in each bay to ensure proper ventilation. Leaving a power supply bay unpopulated or uncovered impairs the ability of the fans to cool the chassis.

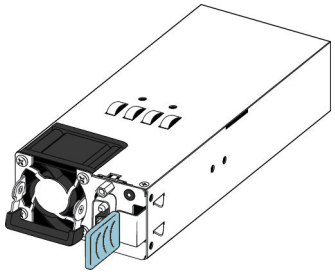


Figure 3: DC power supply

The 800 W DC power supply uses a DC power supply wiring assembly to connect the power supply to the DC power source.

The following table describes the regulatory DC power specifications for the VSP 8404-DC switch. Note that regulatory power specifications are based on the maximum rated capacity of the power supplies and are not based on typical power consumption, which is typically lower.

Table 7: DC power specifications

	8404-DC
Input Current:	24–16 A
Input Voltage (rms):	40.5 to 60 VDC
Power Consumption:	800 W maximum
Temperature:	Operating range: 0 to 50 ºC Non-operating range: -40 to 70 ºC
Inrush Current:	50 A maximum
Turn on Condition:	500 milliseconds maximum after application of DC power
Important: 12 V output rise time, from 10 to 90 percent, must be the maximum of 70 ms and monotonic under all defined input and output conditions.	
Efficiency:	• 88% minimum at 100% load level • 92% minimum at 50% load level • 88% minimum at 20% load level • 80% minimum at 10% load level

Installing the VSP 8400 in an equipment rack

Note:

The instructions in this section apply to all switches in the Avaya Virtual Services Platform 8000 Series. The illustrations show the VSP 8200 as an example, but the instructions apply to any switch in the series.

There are three ways to install the VSP 8400 in an equipment rack. Refer to one of the following sections:

- Slide Rack Mount Kit-This is a separately ordered option that you can use to install your switch in equipment racks that range from 300mm to 900mm deep. For installation instructions, see Using the optional slide rack mount kit.
- Brackets-The switch comes with brackets that you can install in one of two positions on the chassis:
  - Use the mid-chassis position for a two-post rack.
  - Use the front panel position of the chassis for a four-post rack.

For installation instructions, see Using the supplied brackets.

Before you begin

- Ensure that there is enough rack space to accommodate a 2RU switch (8.8 cm).
- The rack is bolted to the floor and braced if necessary.
- The rack is grounded to the same grounding electrode used by the power service in the area. The ground path must be permanent and must not exceed 1 Ohm of resistance from the rack to the grounding electrode.

About this task

Caution:

When you mount the device in a rack, do not stack units directly on top of one another. You must secure each unit to the rack with the appropriate mounting brackets. Mounting brackets cannot support multiple units.

Using the optional slide rack mount kit

The Universal Slide Rack Mount Kit is adjustable so that you can install your switch in equipment racks of different sizes. Use the following procedures to install your switch in equipment racks with a depth from 300mm to 900mm.

This kit is a separately ordered item (Part # EC8011002).

For instructions see:

- Installing slides in a 300mm-600mm equipment rack
- Installing slides in a 600mm-900mm equipment rack
- Important notice about rack safety
- Removing the switch from an equipment rack

Warning:

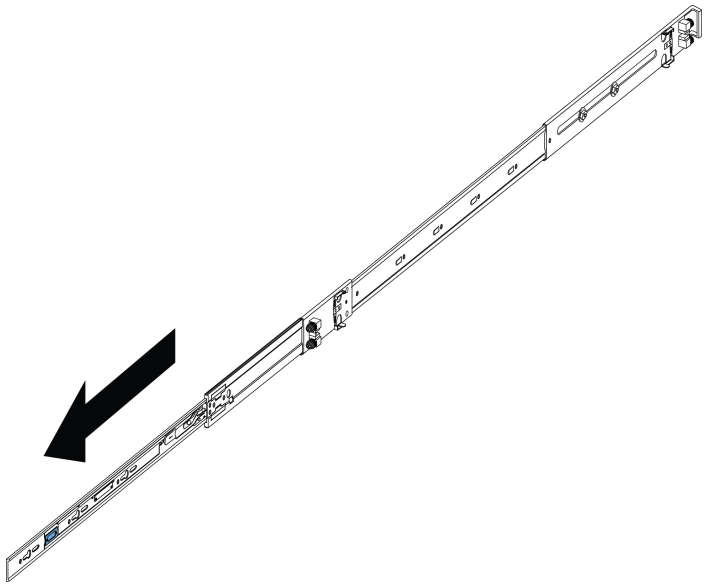
If you pull the switch all the way out on the slide rails, there is a danger of the rack tipping over. For more information and guidelines, see Important notice about rack safety.

Installing slides in a 300mm-600mm equipment rack

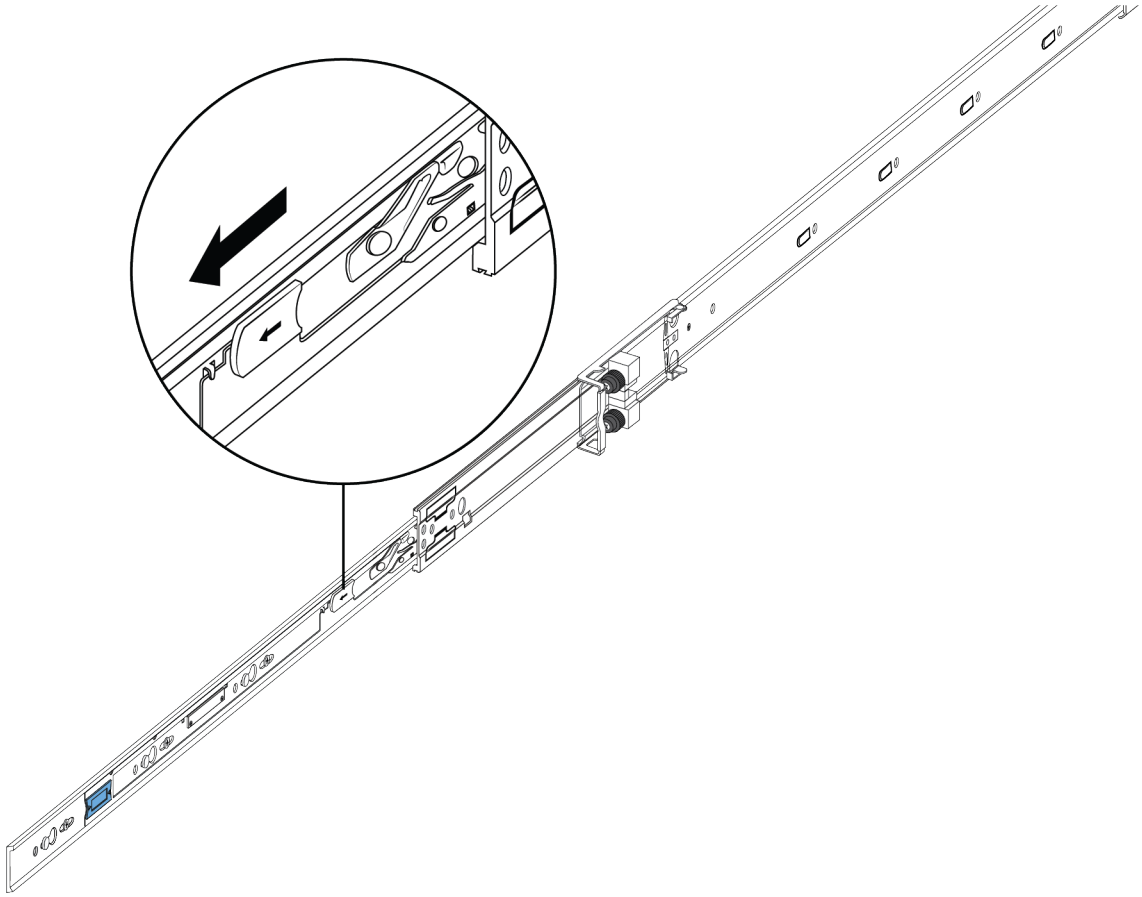
Use the following procedure to install your switch in an equipment rack with a depth between 300mm and 600mm.

Procedure

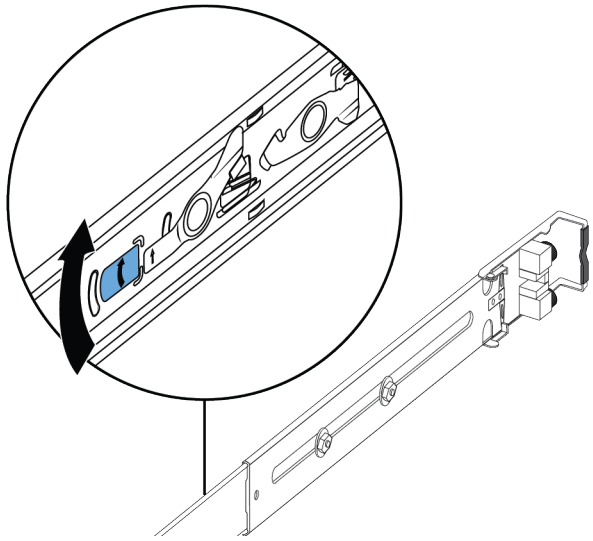
1. Disconnect the power cord from the switch.
2. Use the following steps to detach the chassis rail from the slide's rack rail:
    a. Pull the inner chassis rail and slide it out as far as you can.



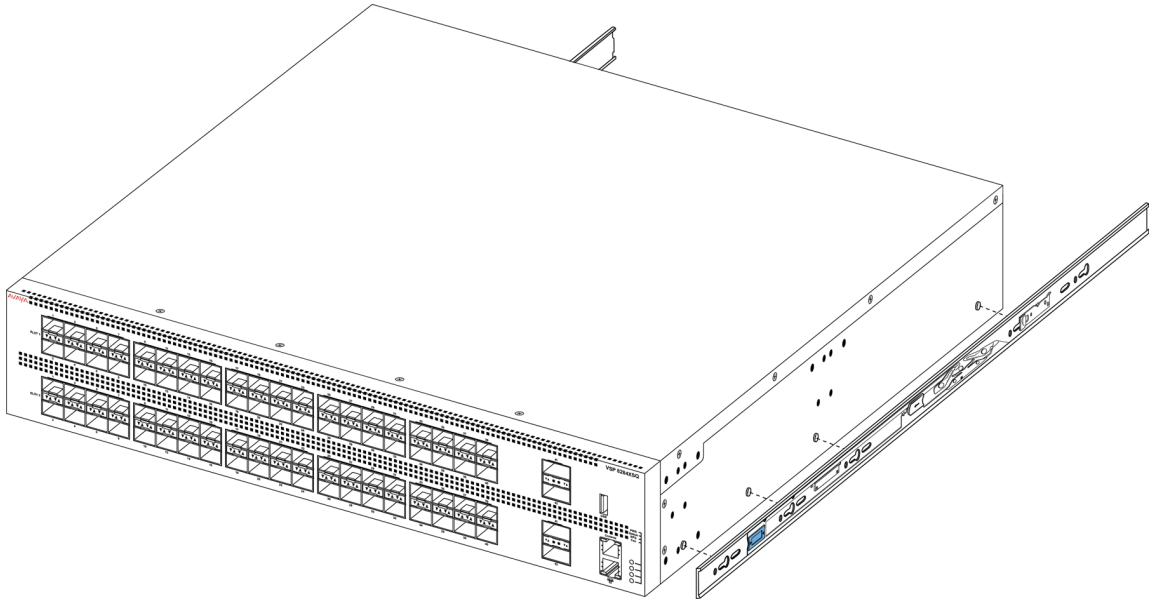
b. Slide the white release lock in the direction of the arrow stamped on the lock.



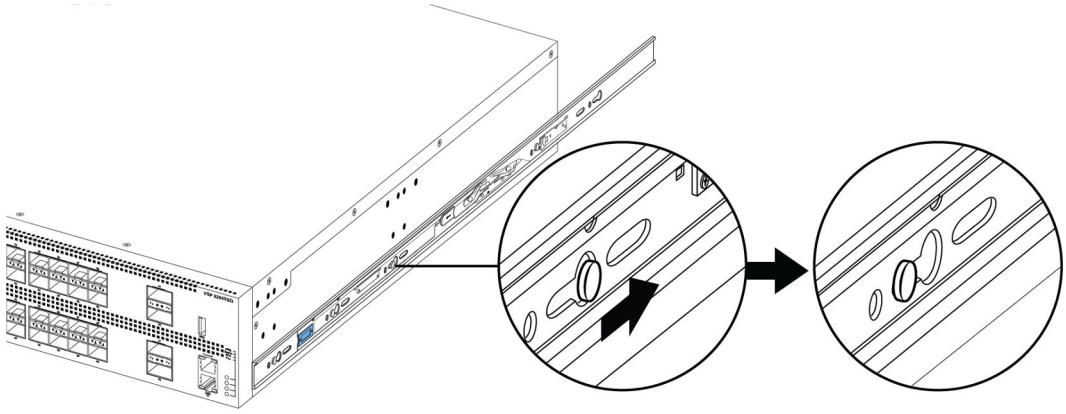
3. Lift the locking mechanism on the rack rail to slide the outer section back into the main section.



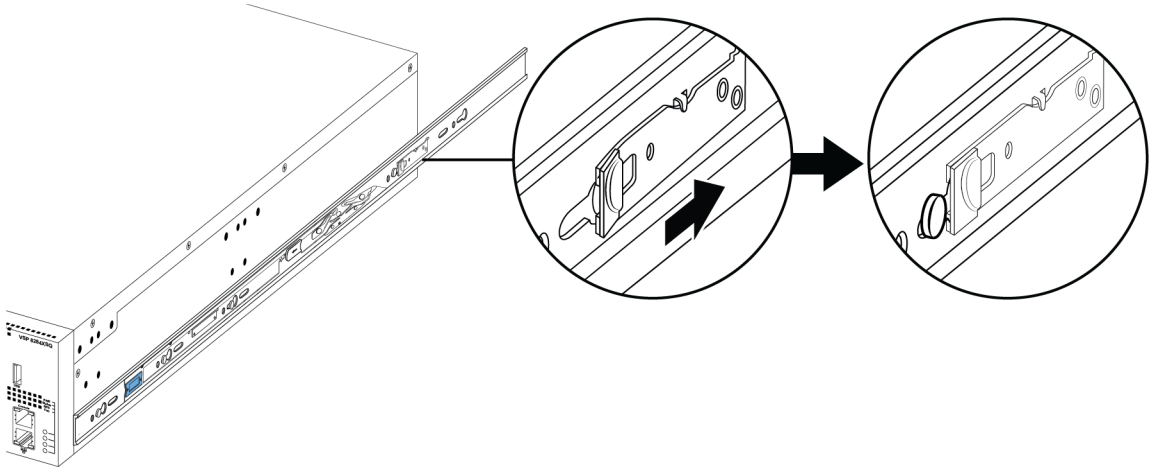
4. Use the following steps to attach the chassis rail to the chassis:
   a. Orient the chassis rail with the blue release lock towards the front and position the rail over the standoffs on the chassis.



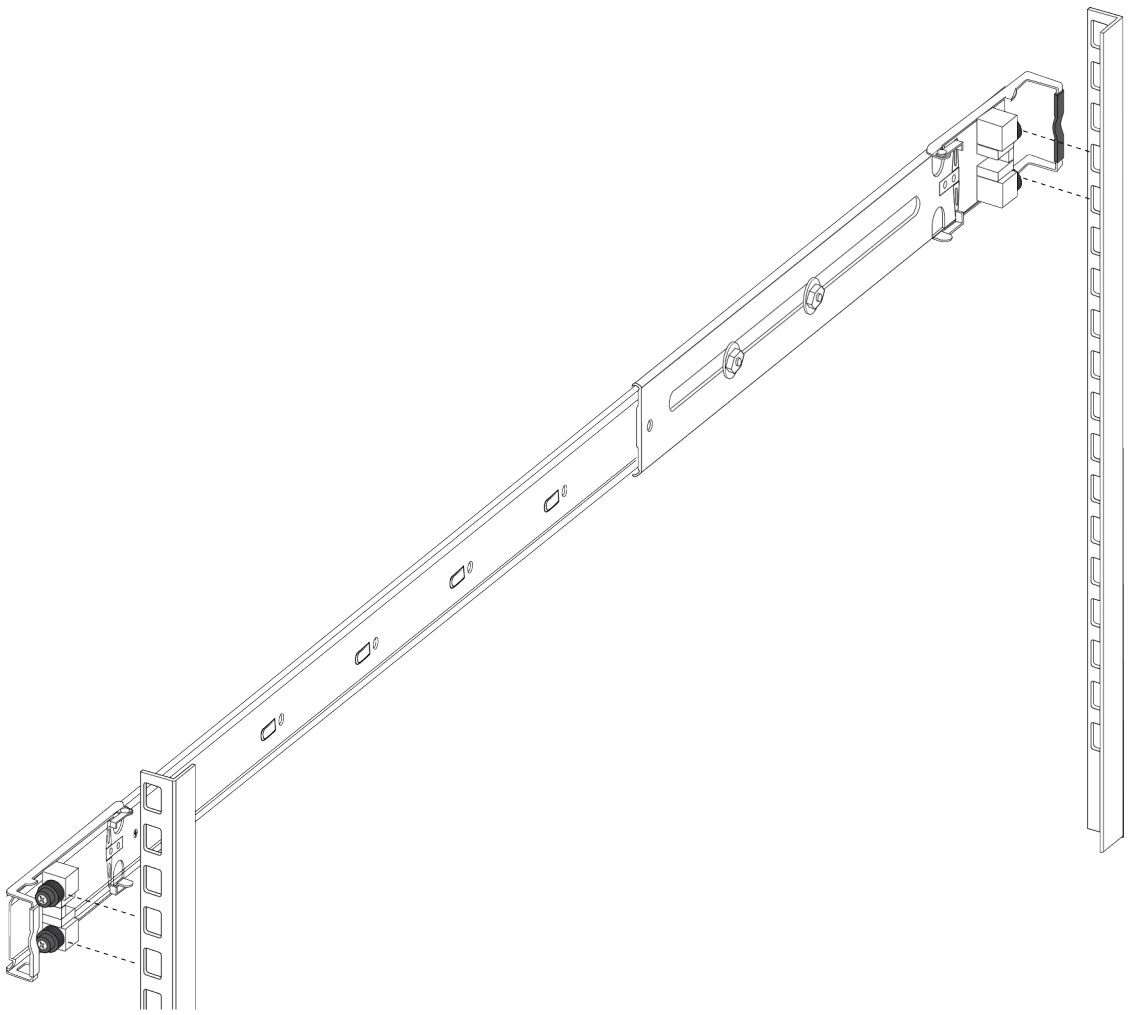
   b. Slide the chassis rail to the rear until the rail locks into the standoffs.



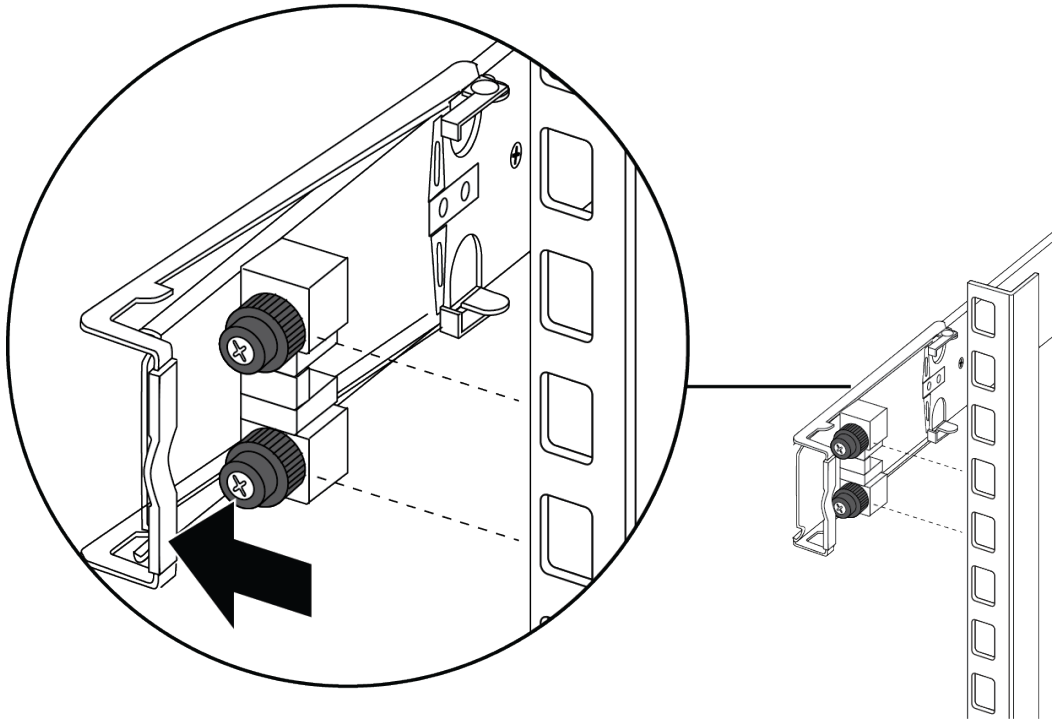
c. Make sure the safety tab locks into place.



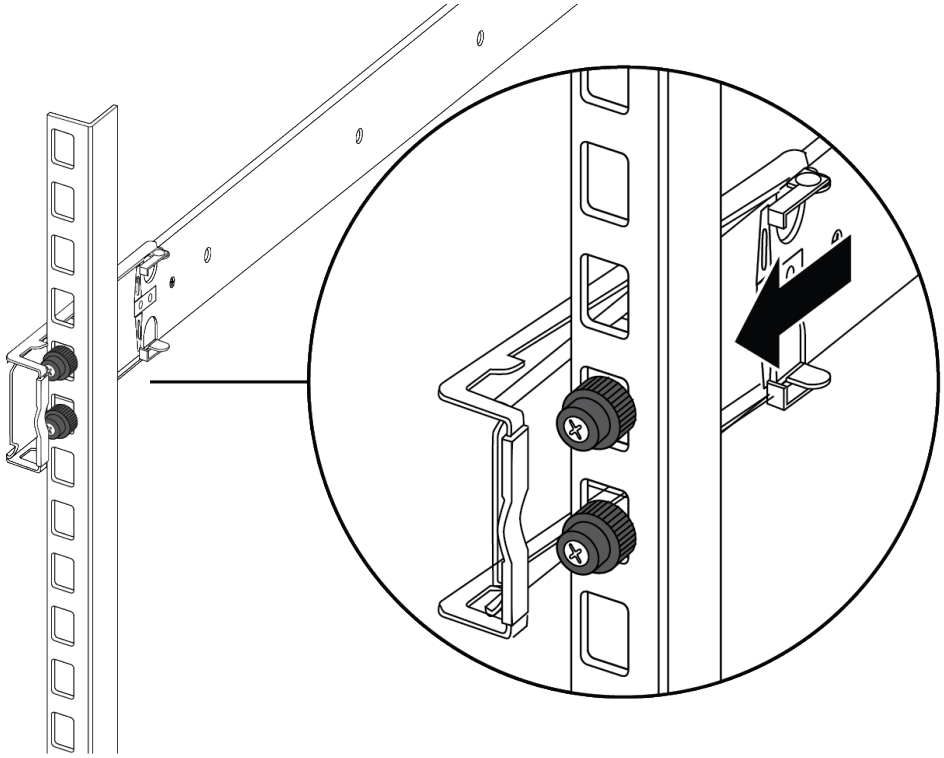
5. Use the following steps to secure the rack rails to the frame:
   a. Orient the rack rail so that the end with the black latch is facing front.
   b. Adjust the length of the rack rail so it fits the rack depth by loosening the two screws on the rack rail, adjusting the length, and then tightening the screws.



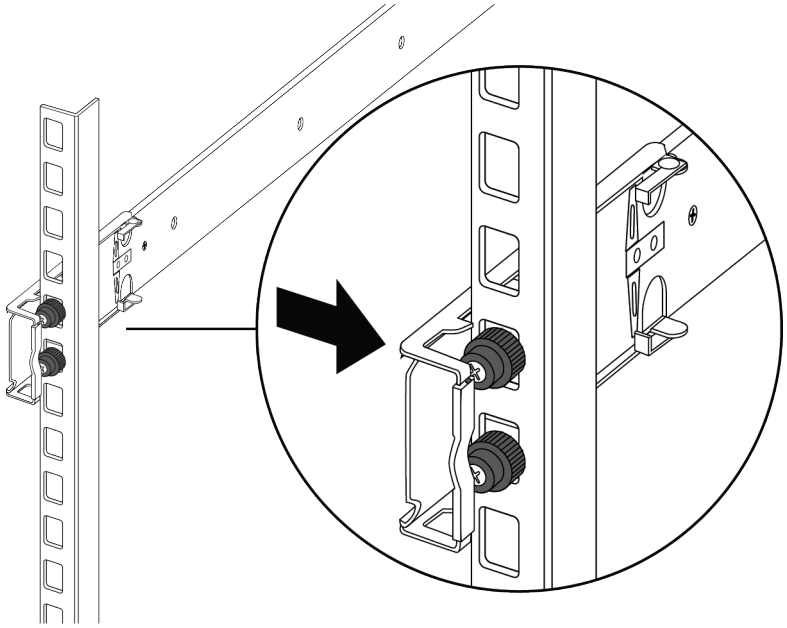
c. Push the end of the front bracket assembly so it opens up.



d. Insert the bracket pins into the desired holes in the frame.



e. Close the bracket assembly so that it wraps around the frame and locks into place.

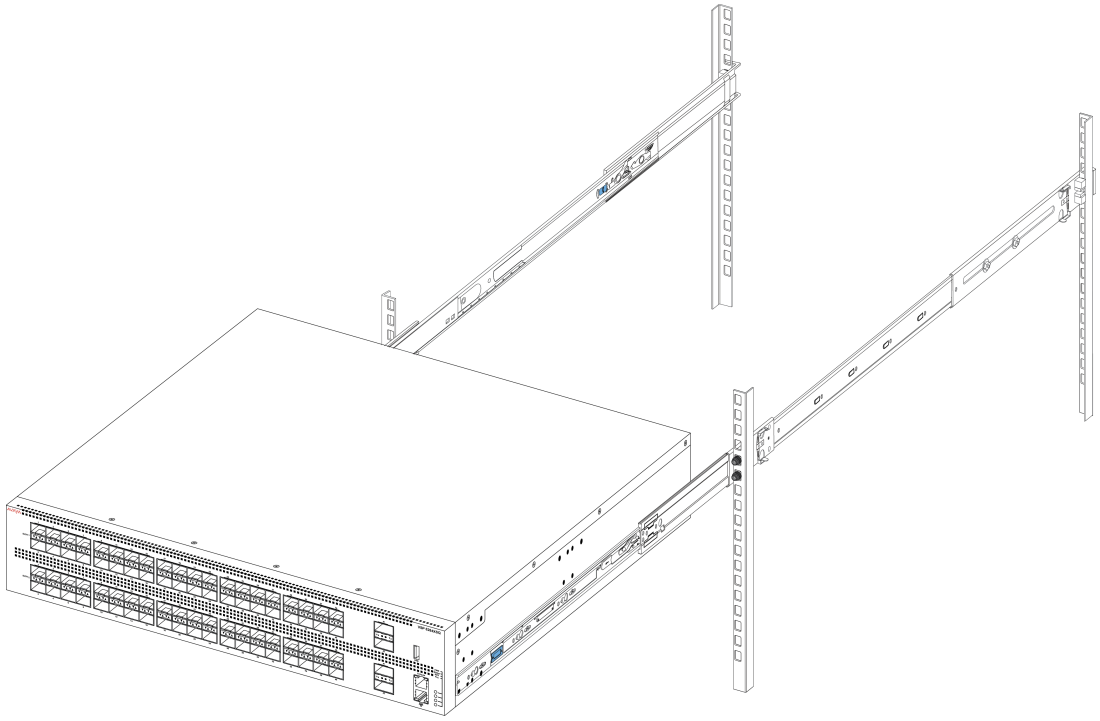


f. Repeat the above steps on the rear bracket.

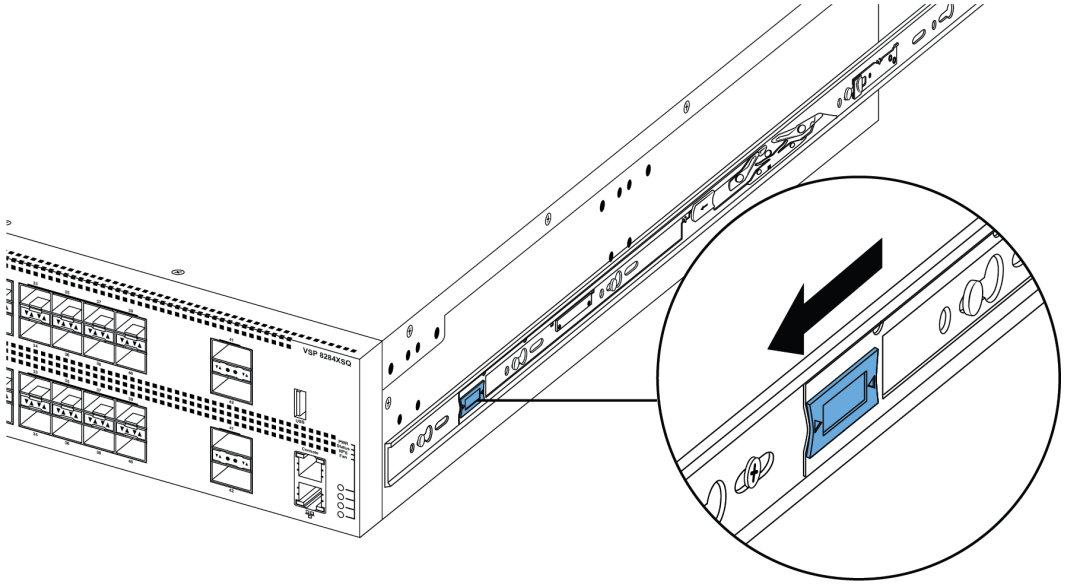
g. Repeat these steps for the rack rail on the other side of the frame.

6. Use the following steps to install the switch in the equipment rack to complete the installation:

   a. Insert the chassis rails on the switch into the rack rails on the frame.



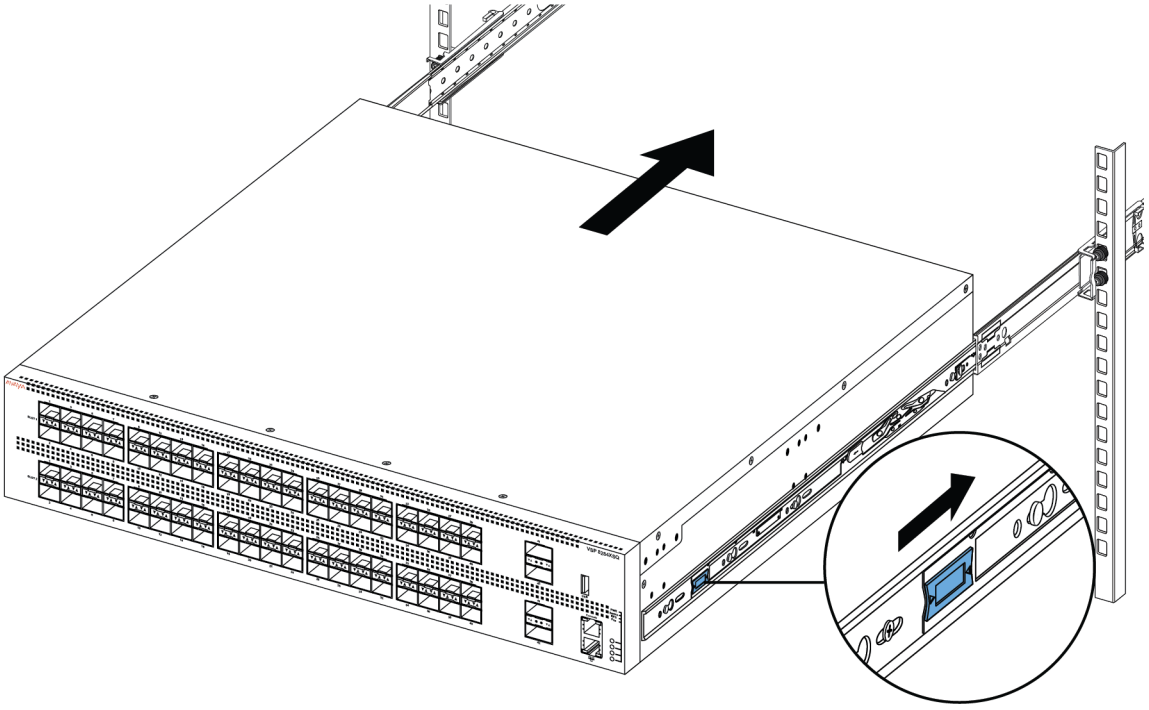
b. Pull the blue locks on the chassis rails towards the front and slide the switch into the frame.



Note:

After you install the switch in a rack, slide it out until the lock (shown above) engages.

To slide the switch back into the rack, push the blue locks on the chassis rails towards the back and slide the switch into the frame.



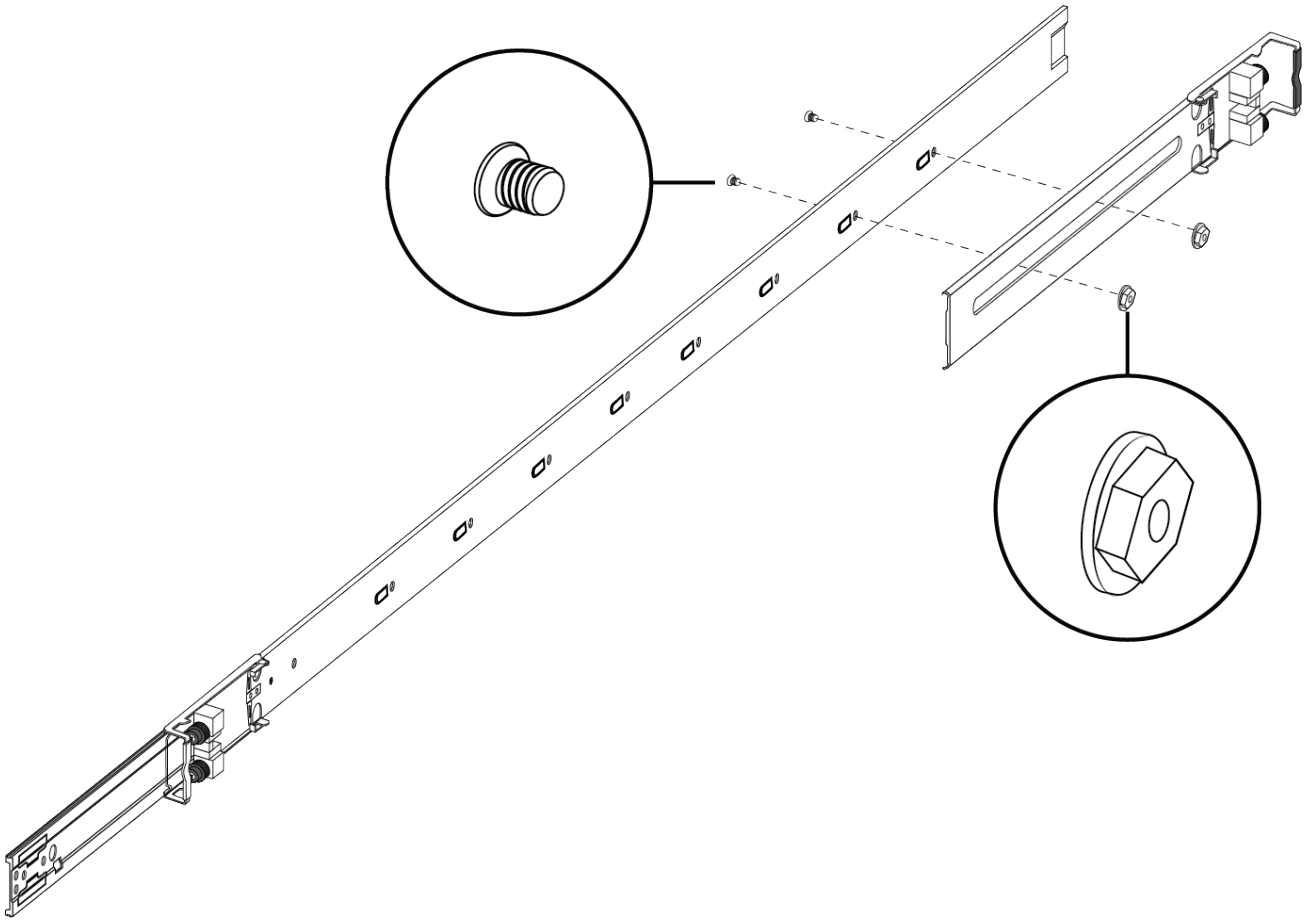
7. Connect power and network connections to the switch.

Installing slides in a 600mm-900mm equipment rack

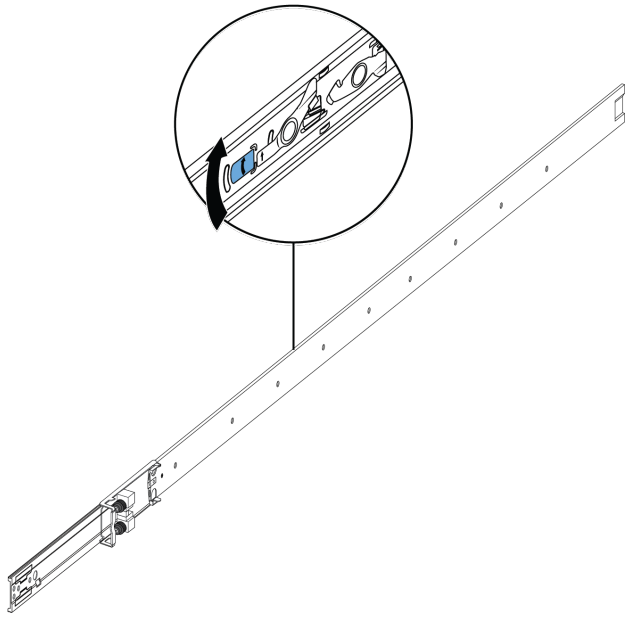
Use the following procedure to install your switch in an equipment rack with a depth between 600mm and 900mm.

Procedure

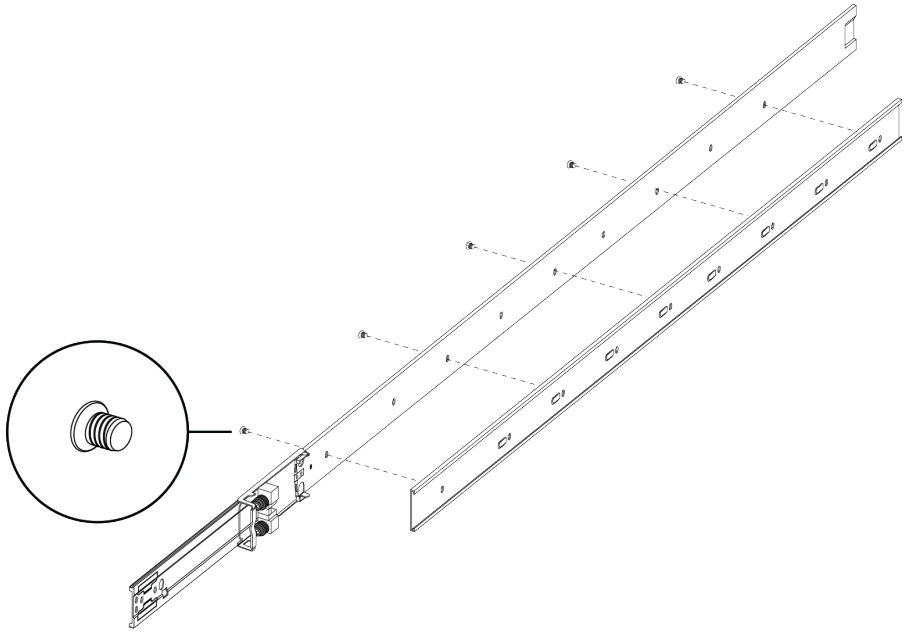
1. Disconnect the power cord from the switch.
2. Detach the chassis rail from the slide's rack rail. (See Step 2 of Installing slides in a 300mm-600mm equipment rack.)
3. Lift the locking mechanism on the rack rail to slide the outer section back into the main section. (See Step 3 of the 300mm-600mm instructions.)
4. Attach the chassis rail to the chassis. (See Step 4 of the 300mm-600mm instructions.)
5. Remove the two screws and nuts securing the short rear bracket to the rack rail. This bracket is for 300mm-600mm equipment racks only and is not used in this installation. Save the bracket for possible future use.



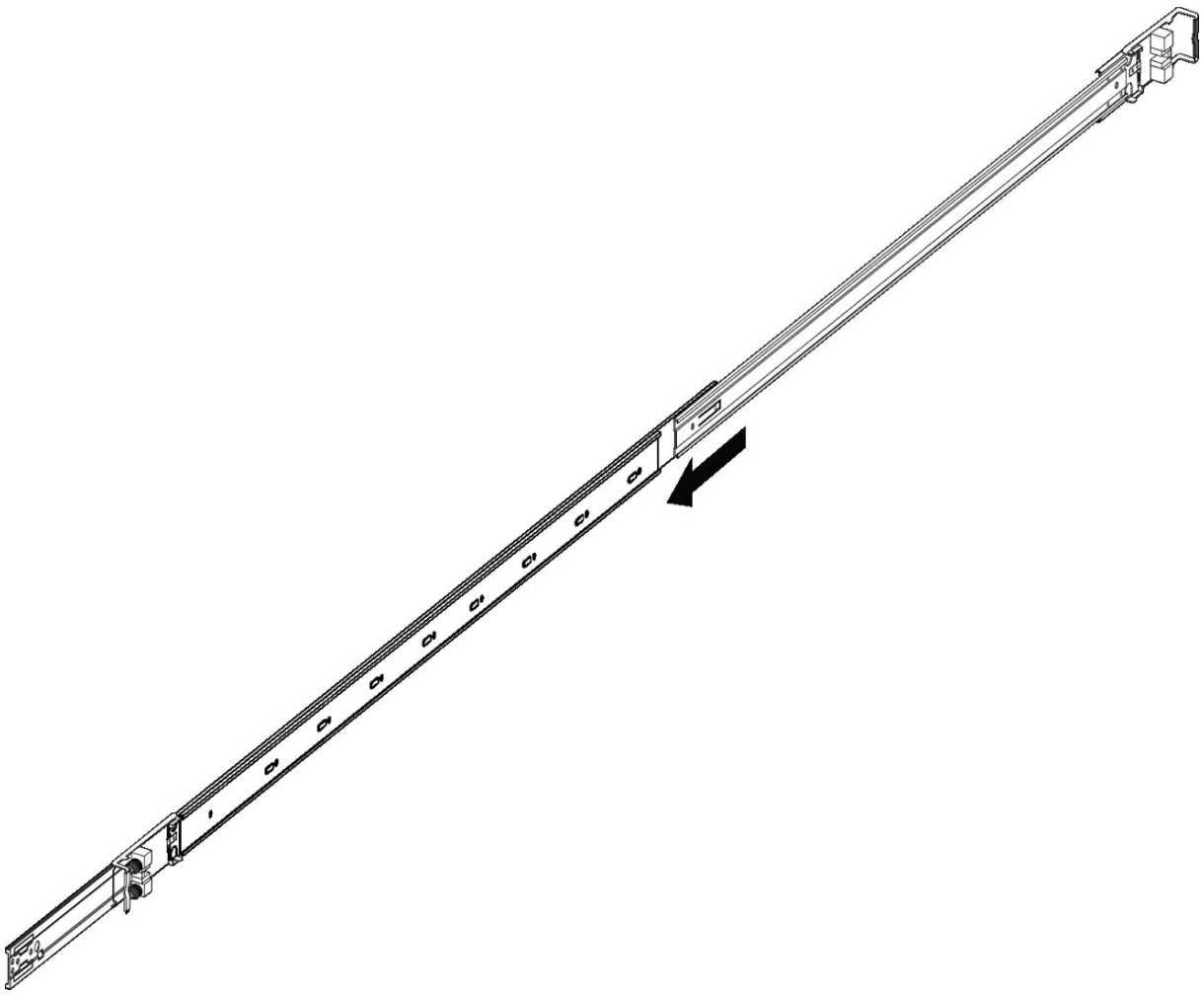
6. Use the bag with 10 countersink screws and following steps to attach the supporting plates to the rack rails:
    a. Push the release lock up and slide the middle rail out as far as possible.



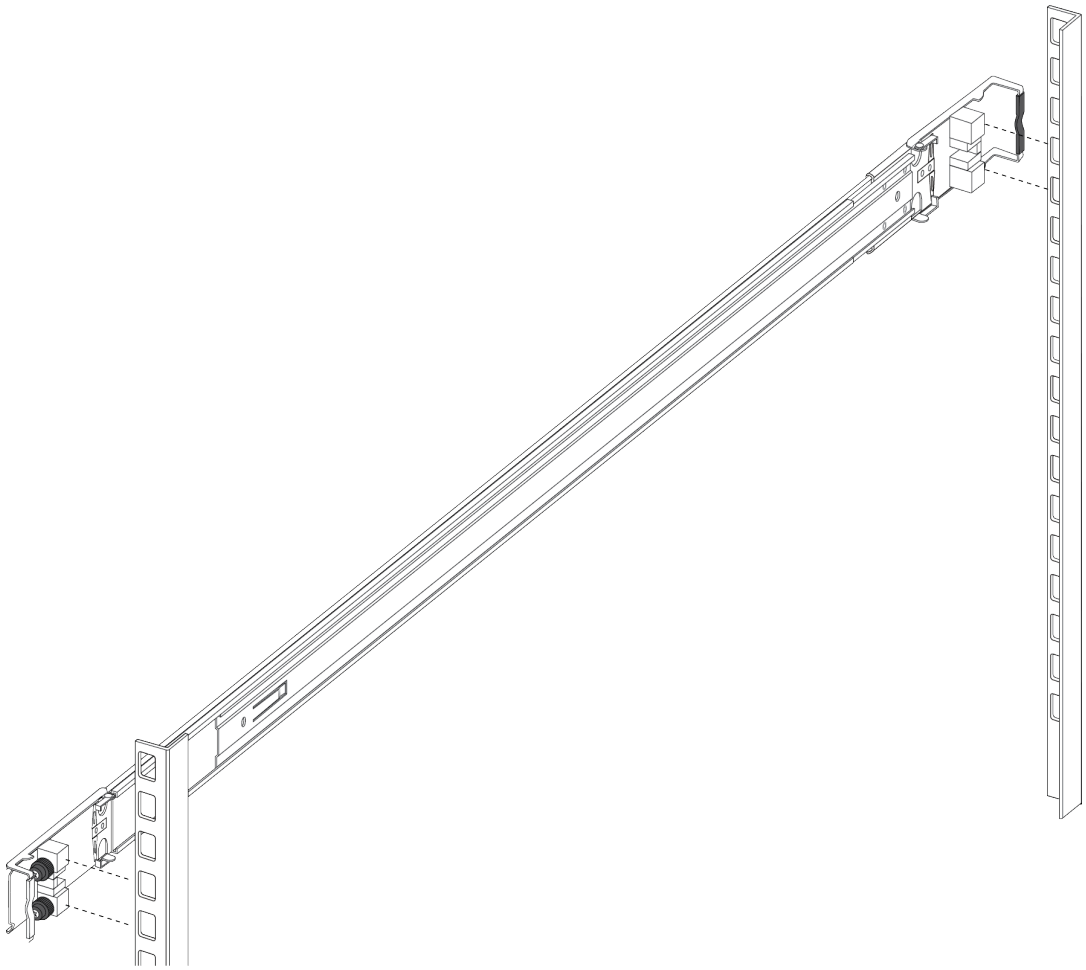
    b. Orient the supporting plate over the holes in the rack rail.
    c. Install the first two screws on one end.
    d. Lift the locking mechanism and slowly slide the rail back into the main assembly. This exposes a “window” over the screw holes so you can install the remaining three screws one at a time.



7. Insert the long rack rail bracket into the supporting plate.



8. Use the following steps to secure the rack rails to the frame:
    a. Orient the rack rail so that the end with the black latch is facing front.
    b. Push the end of the front bracket assembly so it opens up.
    c. Insert the bracket pins into the desired holes in the frame.
    d. Close the bracket assembly so that it wraps around the frame and locks into place.



e. Repeat the above steps on the rear bracket.

f. Repeat these steps for the rack rail on the other side of the frame.

9. Install the switch in the equipment rack to complete the installation. (See Step 6 of the 300mm-600mm instructions.)

   a. Insert the chassis rails on the switch into the rack rails on the frame.

   b. Pull the blue locks on the chassis rails towards the front and slide the switch into the frame.

Note:

After you install the switch in a rack, slide it out until the lock (shown above) engages.

To slide the switch back into the rack, push the blue locks on the chassis rails towards the back and slide the switch into the frame.

10. Connect power and network connections to the switch.

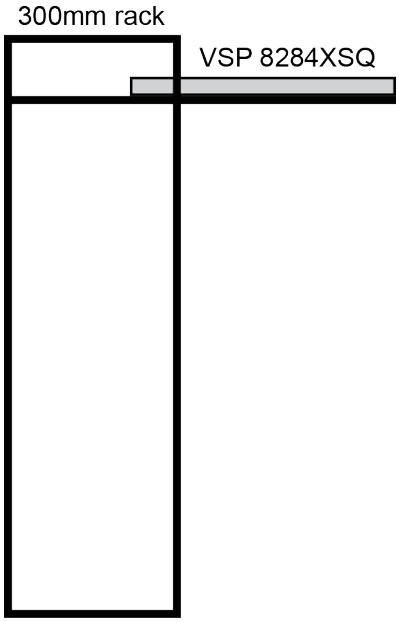
Important notice about rack safety

One prerequisite to installing the switch in an equipment rack is to bolt the equipment rack to the floor. This section emphasizes the safety issue if you do not bolt the rack to the floor.

Warning:

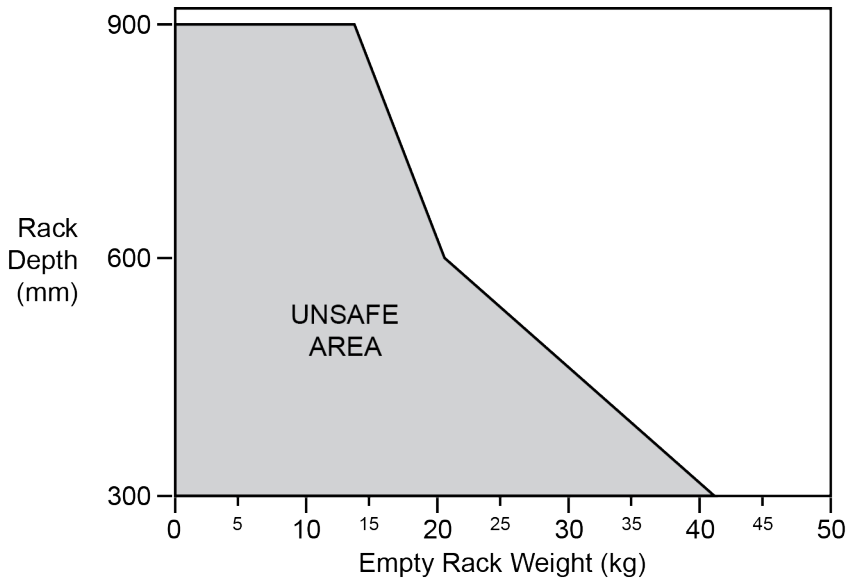
If you pull the chassis all the way out on the slide rails, there is a danger of the rack tipping over.

This can happen if your equipment rack is not bolted to the floor and there are no other devices installed as shown in the following figure. To avoid this danger, refer to the guidelines in the graph below the figure.



If your rack meets the following guidelines and you pull the chassis all the way out, the rack is in danger of tipping over:

- 900mm equipment rack that weighs less than 14kg
- 600mm equipment rack that weighs less than 21kg
- 300mm equipment rack that weighs less than 42kg



Removing the switch from an equipment rack

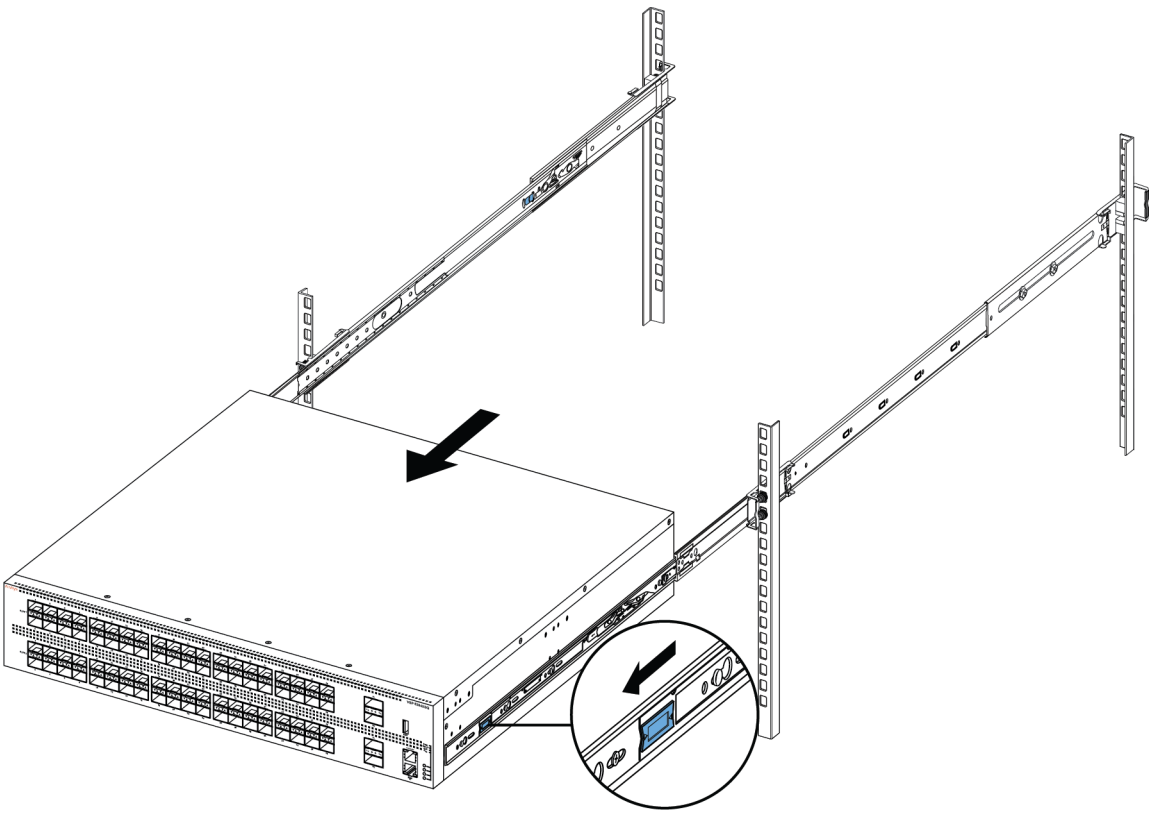
Follow these steps if you have to remove the switch from an equipment rack.

Important:

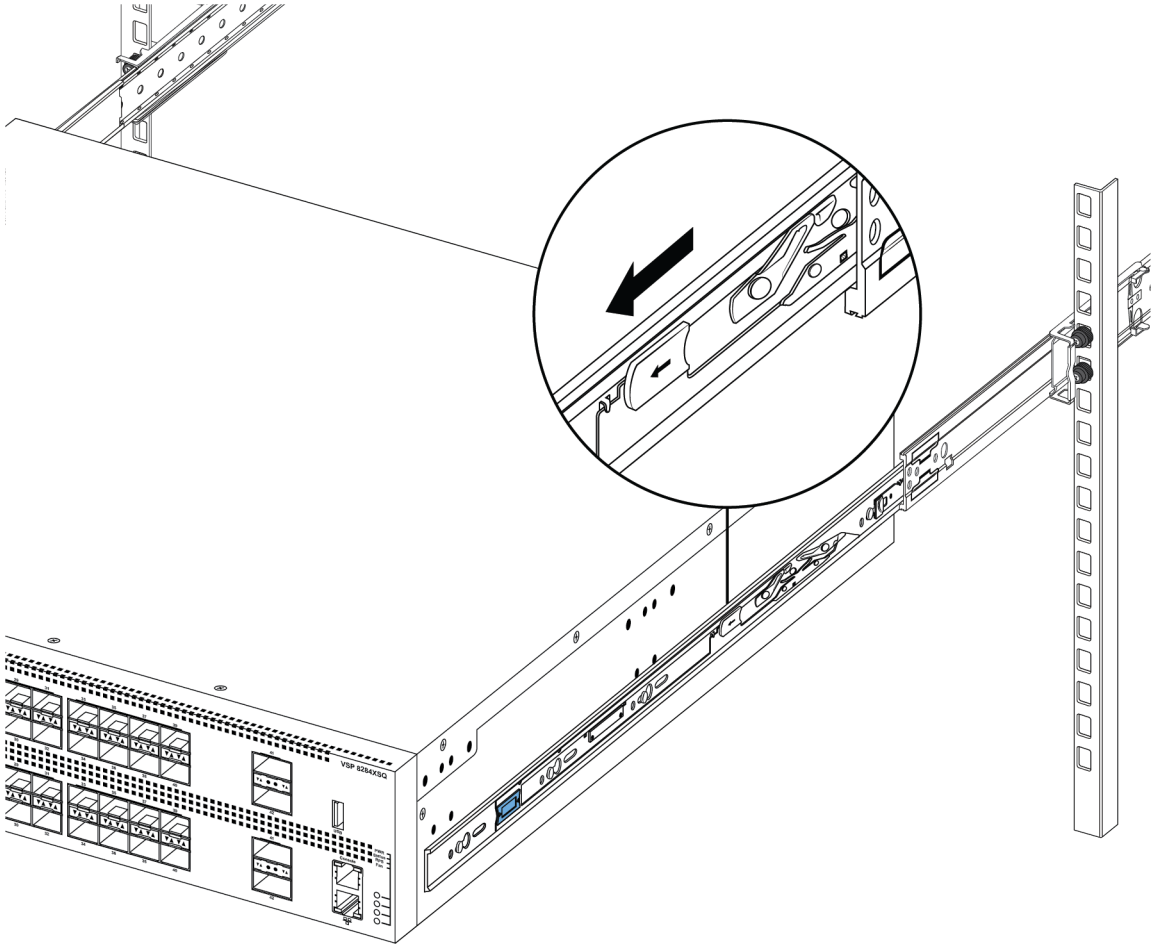
This procedure requires two people.

Procedure

1. Disconnect the power cord from the switch.
2. Slide the switch out until the lock engages.



3. While the person standing in back of the chassis slides both of the white release locks (one on each side of the chassis) towards the front, the person standing in front of the chassis pulls the chassis out of the rack.



Using the supplied brackets

This procedure describes how to install the switch using the supplied brackets on a two-post or four-post equipment rack. The brackets secure the chassis and prevent it from sliding around during vibration or when inserting or extracting transceivers.

- If you have a two-post rack, install the brackets in the mid-chassis position.
- If you have a four-post rack, install the brackets in the front chassis position. In the front position, the switch should rest on a customer-supplied tray or shelf.

⚠ Caution:

Do not mount the chassis with brackets in the front position without using a tray under the chassis. The chassis weight will cause damage to a rack when mounted by the front panel, especially in an environment with vibration or in an earthquake prone area.

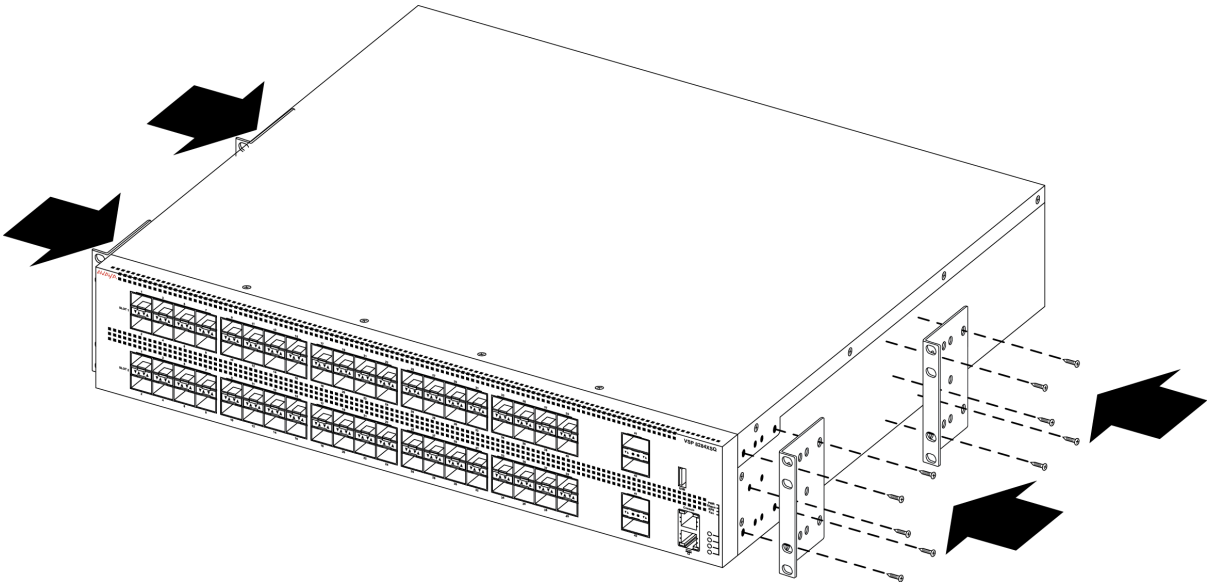
Procedure

1. Disconnect the power cord from the switch.

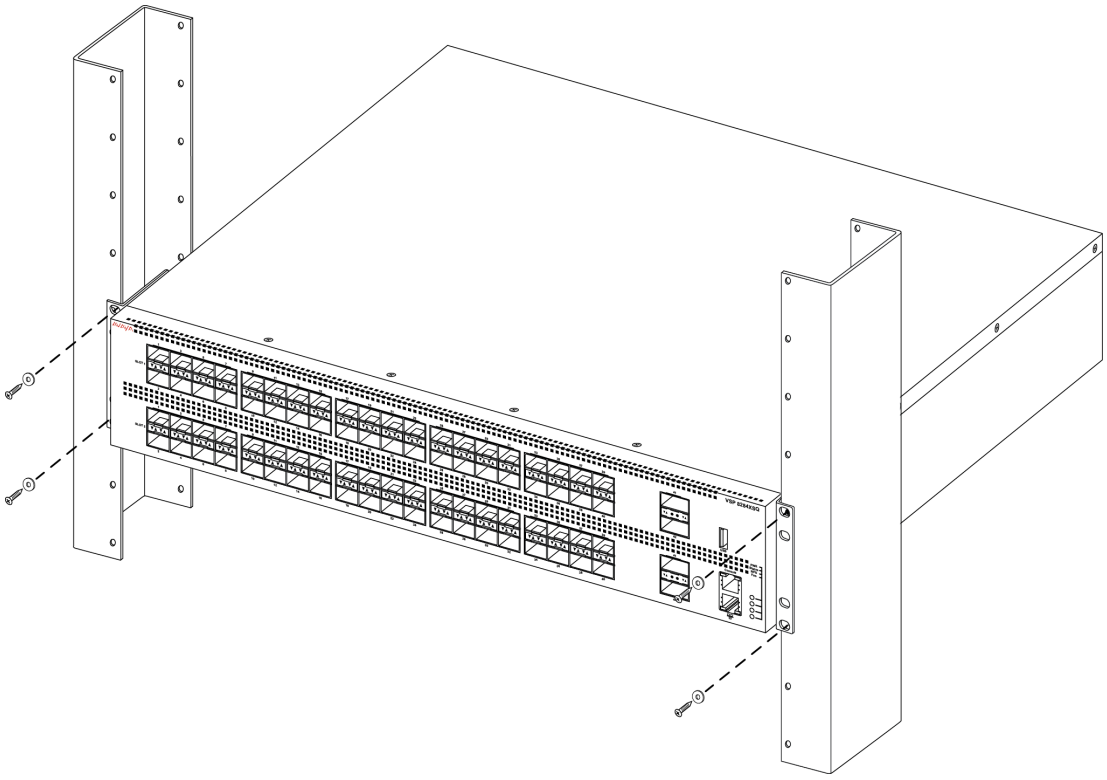
2. Attach a bracket to each side of the switch using a #2 Phillips screwdriver as illustrated below.

   Caution:

   The following figure shows the bracket position for a 4–post rack installation. If you are installing the chassis in a 2–post rack, attach the bracket in the location recessed 150 mm from the front of the chassis.



3. Slide the switch onto a shelf or tray in the rack.



4. Insert and tighten the rack-mount screws.
5. Verify that the switch is securely fastened to the rack.
6. Connect power and network connections to the switch.