

Install the Cisco NCS 1014 Chassis

This chapter contains procedures to install the Cisco NCS 1014 chassis.

- Rack Compatibility, on page 1
- Install the Cisco NCS 1014 or NCS 1014-2 Chassis on an EIA/ANSI/ETSI Rack, on page 3
- General Power and Grounding Requirements, on page 17
- Attach the Fiber Management Bracket to the Slider Rail, on page 20

Rack Compatibility

This section provides rack compatibility details for the Cisco NCS 1014.

Figure 1: Four Post Rack Type

4 – Post Type (Hole EIA Universal)		Compatibility
All 23" Type rack		✓
19" Type rack L-Type Post		✓
19" Type Racks Flat-Post		✓
19" Type racks C- Type Post		✗
ETSI Type rack (Hole ETSI Universal)		✓

Figure 2: Four Post Rack Type

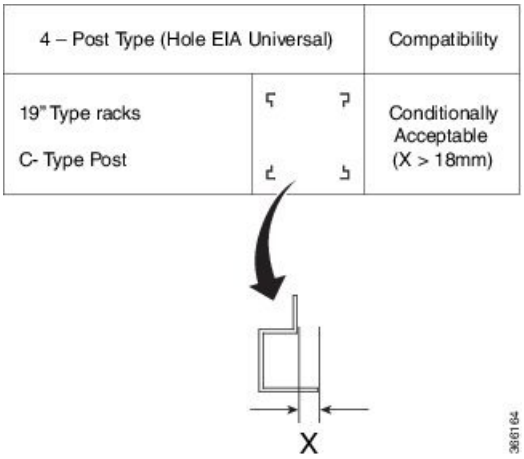


Figure 3: Two Post Rack Type

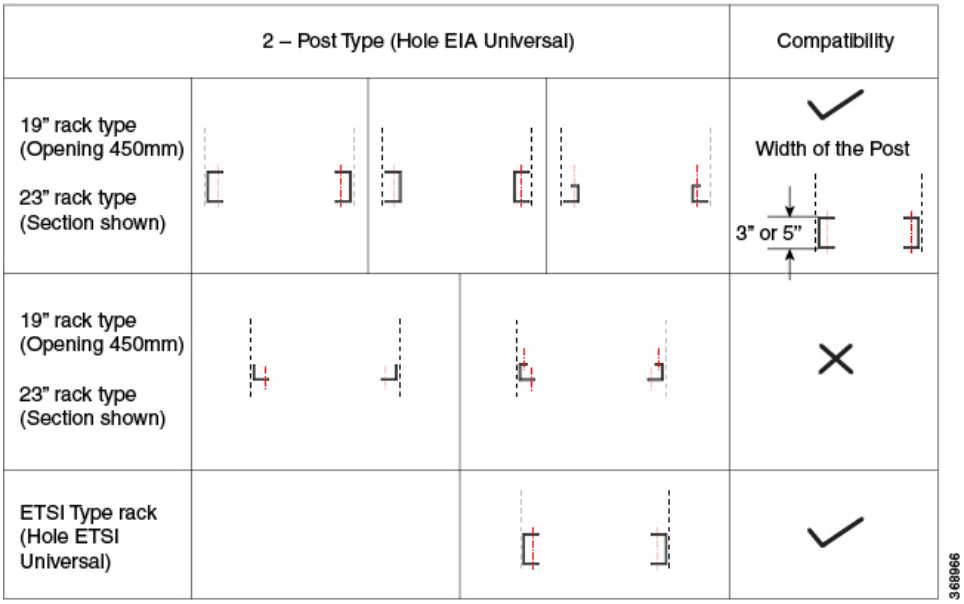
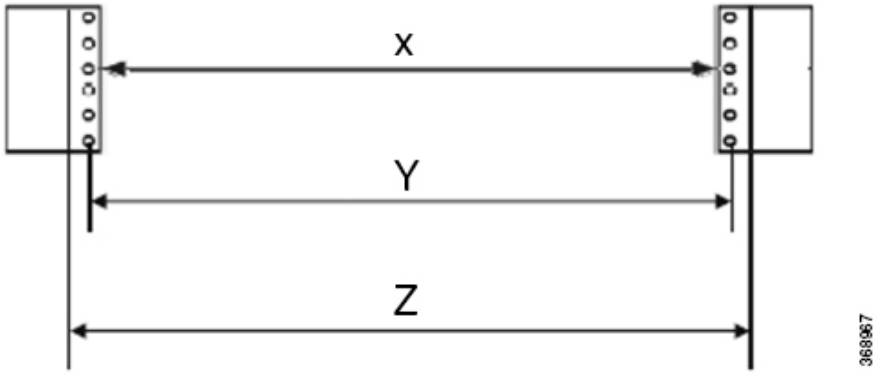


Figure 4: Rack Specification



Rack Type	Rack Front Opening X	Rack Mounting Hole Center-Center Y	Mounting Flange Dimension Z
19" racks	450.8mm (17.75")	465mm (18.312")	482.6mm (19")
23" racks	552.45mm (21.75")	566.7mm (22.312")	584.2mm (23")
ETSI racks	500.0mm(19.68")	515.0mm(20.276")	533.4mm(21")

Note The distance between the front and the rear post in a four post rack is 427 mm (closed position) and 707 mm (open position).

Install the Cisco NCS 1014 or NCS 1014-2 Chassis on an EIA/ANSI/ETSI Rack

Use this procedure to mount the Cisco NCS 1014 chassis or NCS 1014-2 on an EIA/ANSI/ETSI rack.

Warning

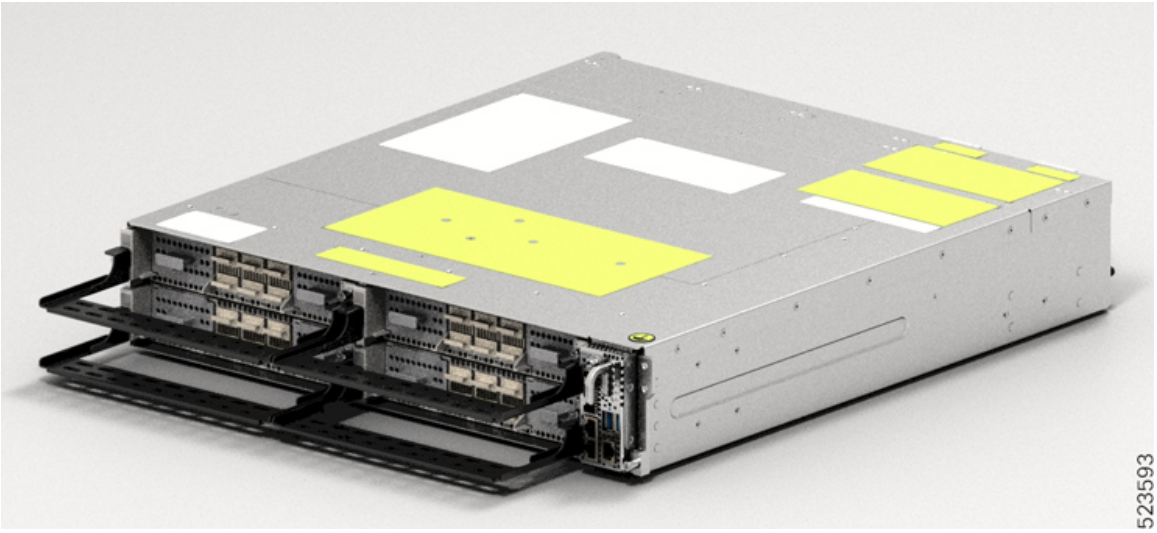
Rack Mount Instructions

The following or similar rack-mount instructions are included with the installation instructions:

- Elevated Operating Ambient: If installed in a closed or multirack assembly, the operating temperature of the rack environment may be greater than room temperature. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (Tma) specified.
- Reduced Air Flow: Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.
- Mechanical Loading: Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.
- Circuit Overloading: Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.
- Reliable Earthing: Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (for example, use of power strips).

It is mandatory to fix the fiber management brackets for all the cards in the chassis before you install the Cisco NCS 1014 chassis onto the rack. See Attach Fiber Management Bracket section for the detailed procedure.

Figure 5: Line Cards fitted with Fiber Management Bracket



Note In ETSI racks, to maintain a footprint of 600 mm, do not install the cabinet door and maintain the horizontal bar of the fiber management bracket at the shortest length. See Adjusting the Fiber Management Bracket.

Caution Use the sliding rail only for first chassis positioning. You must fix the chassis with screws on the front side.

Caution Use only the fastening hardware provided with Cisco NCS 1014 to prevent loosening, deterioration, and electromechanical corrosion of the hardware and joined material.

Before you begin

Ensure that the rack is compatible. See the Rack Compatibility, on page 1 section.

If you are installing an NCS 1014-2 that has four single slot fillers and a divider, remove the fillers as described in Install the Line Cardand remove the divider as described in Remove the divider from the NCS 1014-2 chassis.

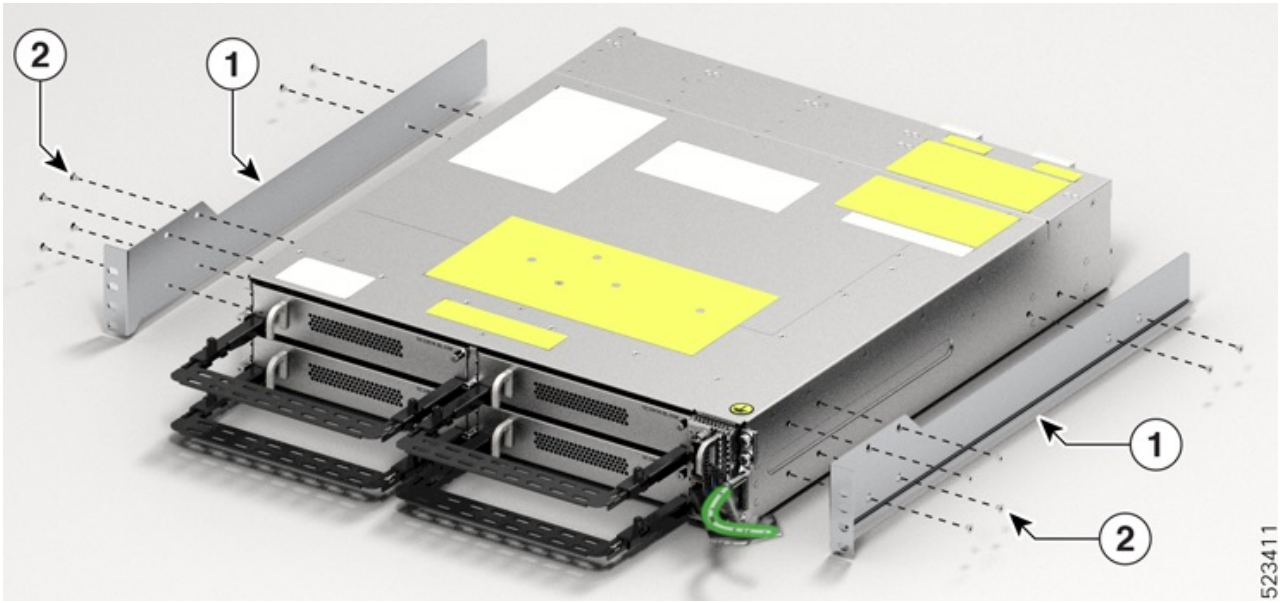
If you are installing an NCS 1014-2 chassis that has preinstalled OXP2-K9 line card, remove the card and the filler as described in Remove and replace OXP2-K9 line card to reduce the weight of the chassis before installation.

Procedure

Step 1 Attach the left and right mounting brackets to the chassis using the M4 Phillips flat-head mounting screws for mounting brackets (48-2029-01) and tighten them to torque value of 1.5 N-m (13.3 lbs-in).

The left and right brackets are marked accordingly.

Figure 6: Fixing the Brackets



Callout	Component
1	M4 Phillips flat-head mounting screws for mounting brackets (48-2029-01)
2	Right Bracket (700-116388-01) and Left Bracket (700-116386-01)

Step 2 Install the four post slider or two post slider on the rack.

a) Install Two Post Slider into an EIA/ ANSI Rack
b) Install Four Post Slider into an EIA/ ANSI Rack
c) Install Two Post Slider into an ETSI Rack
d) Install Four Post Slider into an ETSI Rack

Step 3 Insert the chassis (with brackets) onto the sliders assembled on the rack.

Step 4 After completely inserting the chassis, fasten it with four 12–24 Pan head mounting screws (48-101524-01) on each side of the bracket.

See Install the Air Filter for the air filter installation procedure, before you fasten the chassis to the rack.

Step 5 Using a number-2 Phillips screwdriver, tighten the screws to a torque value of 4.65 N-m (41 lbs-in).

Install the Two Post Slider into an EIA/ANSI Rack

Use this procedure to install the two post slider into an EIA/ANSI rack.

Before you begin

Tools required:

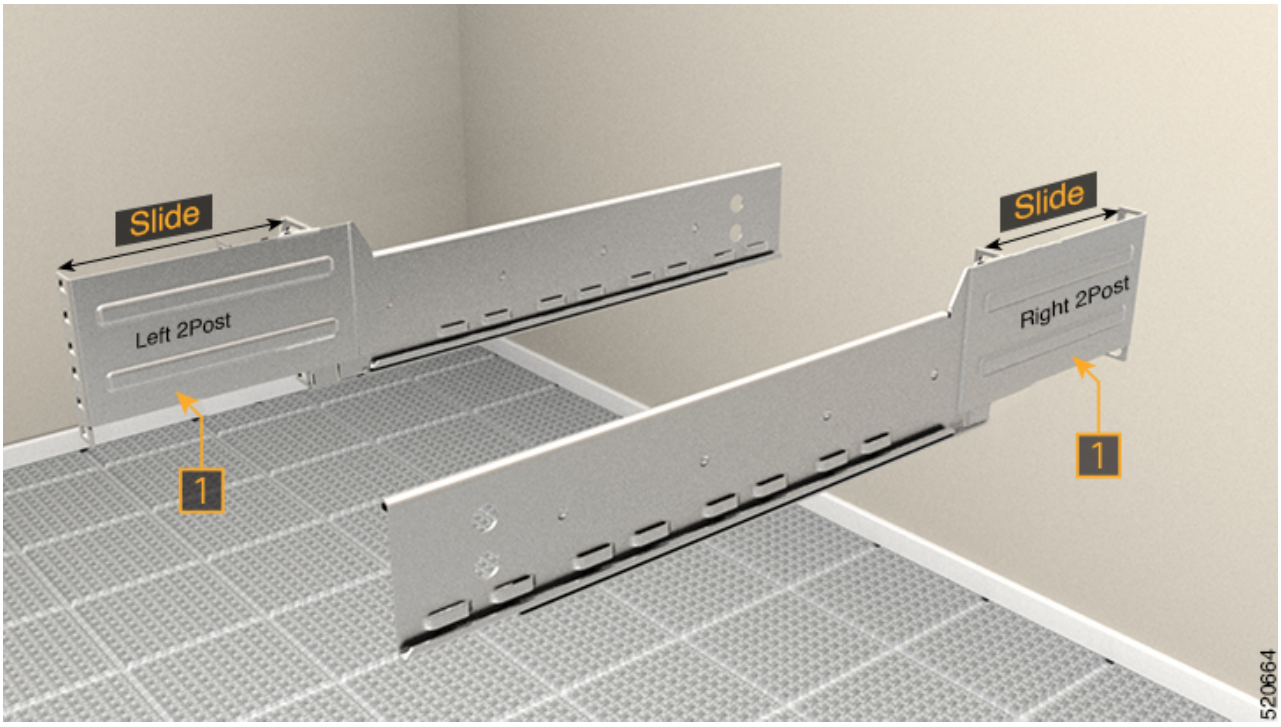
- Customer-supplied screwdriver
- Two-post left slide rail (800-48743-01)
- Two-post right slide rail (800-48744-01)
- 23" rack to 19" rack adapter (700-116871-01)
- 12–24 Pan head mounting screw for slide rails (48-101524-01)

Procedure

Step 1 Identify the two post slider and adjust the length of the slider (3" to 5").

Slide the inner sliders and adjust the length to mate with the rack surface.

Figure 7: Two Post Slider Identification

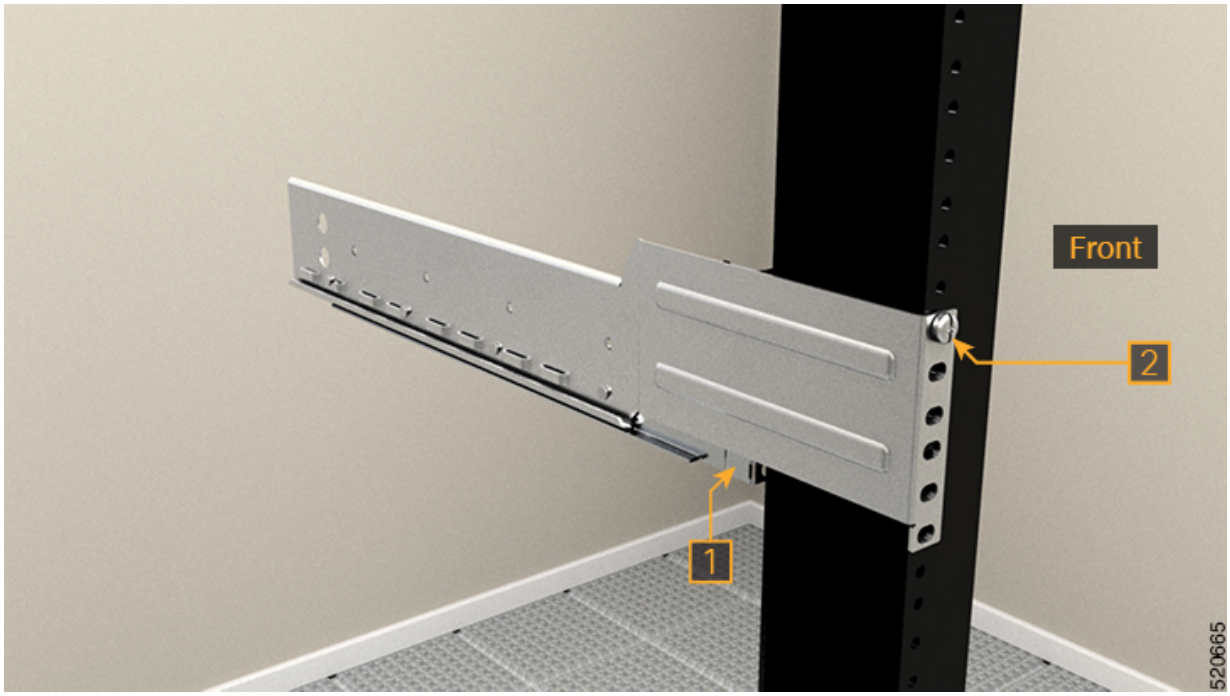


1	Two-post left slide rail (800-48743-01) Two-post right slide rail (800-48744-01) Check for marking on the sliders; the markings indicate the right and the left sliders.

Step 2 Integrate the two post slider with the rack. Perform one of the following actions:

- For the 19" rack, you can directly fit the slider on to the rack. Perform the following steps:
  - **a.** On the front side, insert only one 12–24 Pan head mounting screw for slide rails (48-101524-01) at the top-most screw hole of the slider.
  - **b.** Tighten the screw to a torque value of 4.65 N-m (41 lbs-in).
  - **c.** Similarly, on the rear side, insert three 12–24 Pan head mounting screws for slide rails (48-101524-01) and tighten them to torque value of 4.65 N-m (41 lbs-in).

Figure 8: Two Post Slider Integration in the 19" Rack



1	Inner surface of the sliding bracket.
2	12–24 Pan head mounting screw for slide rails (48-101524-01)

- For the 23" rack, you can fit the slider on to the rack using an adapter. Perform the following steps: (refer the following image).

  The formed surface must always face the inner side of the rack post.

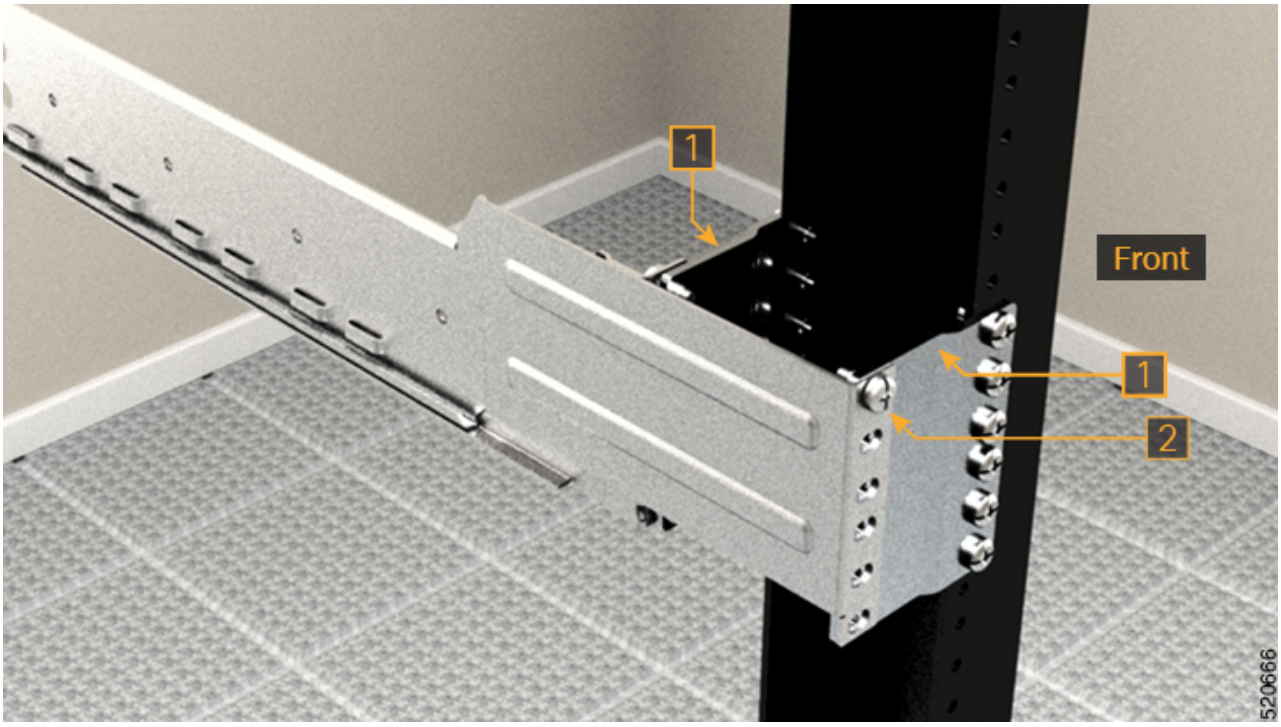
  a. Towards the chassis on the front side of the 23" rack to 19" rack adapter (700-116871-01), at the top-most screw hole of the slider, insert only one 12–24 Pan head mounting screw for slide rails (48-101524-01).

  b. Tighten the screw to a torque value of 4.65 N-m (41 lbs-in).

  c. Similarly, on the rear side towards the chassis, insert three 12–24 Pan head mounting screw for slide rails (48-101524-01) and tighten them to a torque value of 4.65 N-m (41 lbs-in).

  For the adapter portion which is towards the rack, you must fit all the six screws on the front and rear side.

Figure 9: Two Post Slider Integration in the 23" Rack



1	23" rack to 19" rack adapter (700-116871-01)
2	12–24 Pan head mounting screw for slide rails (48-101524-01)

Install the Four Post Slider into an EIA/ANSI Rack

Use this procedure to install the four post slider into an EIA/ANSI rack.

Before you begin

Tools required:

- Customer-supplied screwdriver
- 12–24 Pan head mounting screw for slide rails (48-101524-01)
- Four-post right slide rail (800-48786-01) and four-post left slide rail (800-48787-01)

  Or

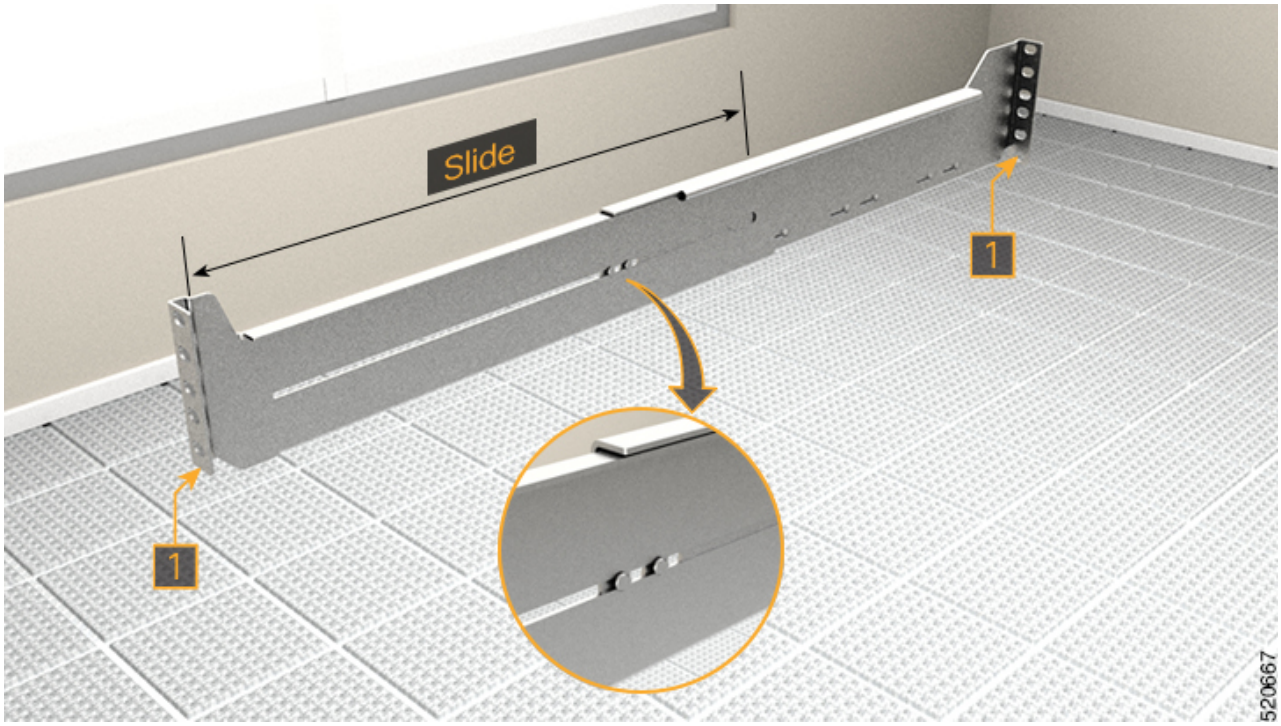
  Four-post (30-40") left slide rail (800-51869-01) and four-post (30-40") left slide rail (800-51870-01)
- 23" rack to 19" rack adapters (700-116871-01). These adapters are applicable only for four-post right slide rail (800-48786-01) and four-post left slide rail (800-48787-01).

Procedure

Step 1 Identify the four post slider and adjust the length of the slider.

Slide the inner slider arm and adjust the length to mate with the rack surface.

Figure 10: Four Post Slider Identification



1	Four-post right slide rail (800-48786-01) Slide and adjust the length of the slider arm.

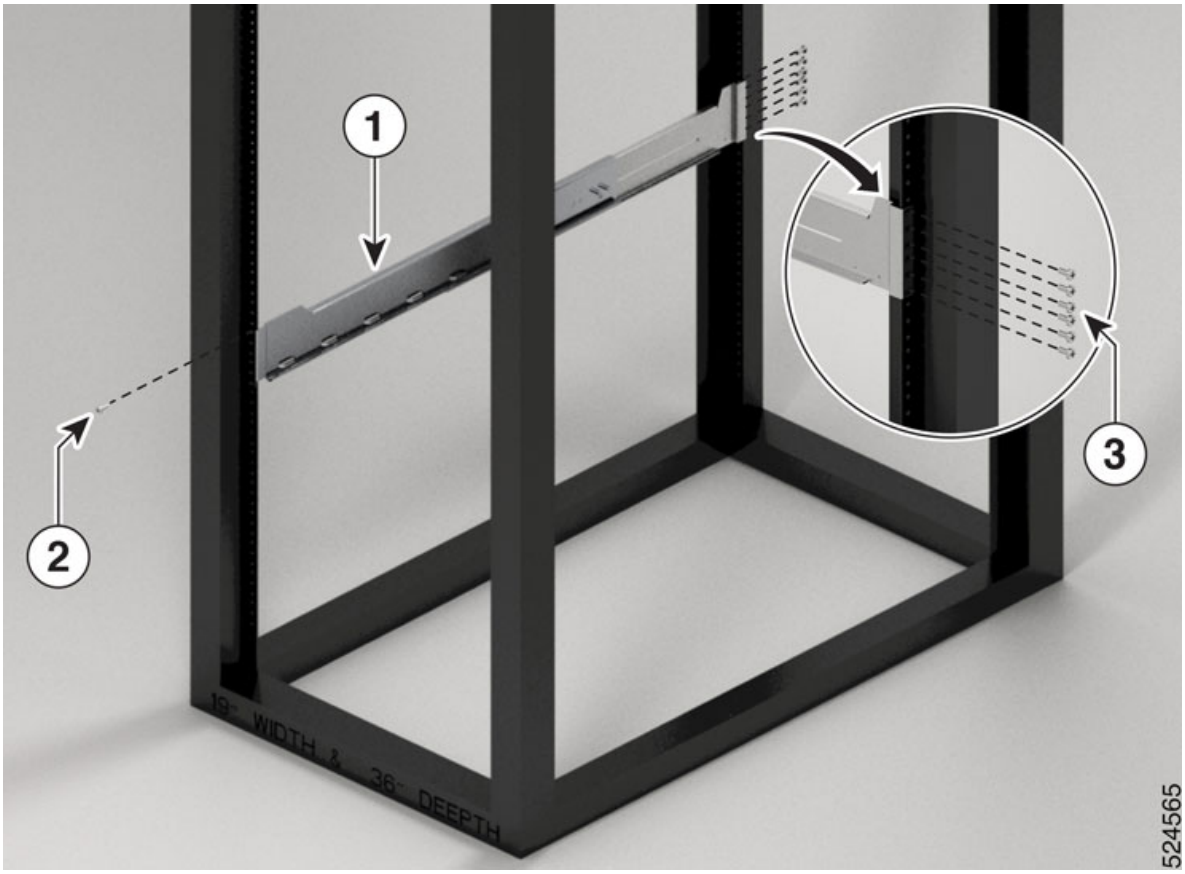
Step 2 Integrate the four post slider with the rack. Perform one of the following actions:

- For the 19" rack, you can directly fit the slider on to the rack. Perform the following steps:
  - **a.** On the front side, insert only one 12–24 Pan head mounting screw for slide rails (48-101524-01) at the top-most screw hole of the slider.
  - **b.** Tighten the screw to a torque value of 4.65 N-m (41 lbs-in).
  - **c.** Similarly, on the rear side, insert five 12–24 Pan head mounting screws for slide rails (48-101524-01) and tighten them to torque value of 4.65 N-m (41 lbs-in).

Figure 11: Four Post Slider Integration in the 19" Rack



Figure 12: Four Post 30-40" Slider Integration in the 19" Rack



1	Four-post (30-40") left slide rail (800-51869-01)	3	12–24 Pan head mounting screws for slide rails (48-101524-01)
2	12–24 Pan head mounting screws for slide rails (48-101524-01)		

- For the 23" rack, you can fit the slider on to the rack using an adapter. Perform the following steps: (refer the following image).

Note
These steps are applicable only for four-post right slide rail (800-48786-01) and four-post left slide rail (800-48787-01).

The formed surface must always face the inner side of the rack post.

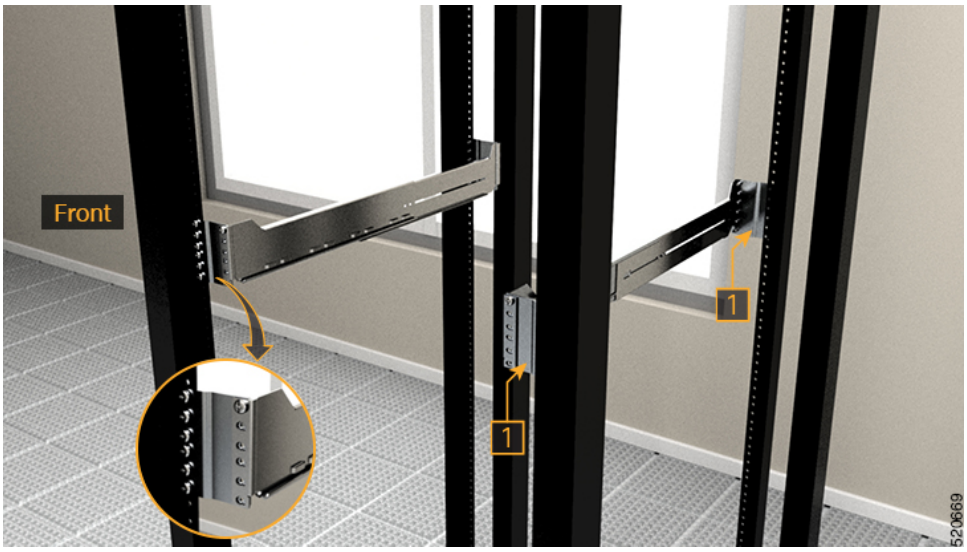
a. Towards the chassis, on the front side of the 23" rack to 19" rack adapter (700-116871-01), insert only one 12–24 Pan head mounting screw for slide rails (48-101524-01) at the top-most screw hole of the slider.

b. Tighten the screw to a torque value of 4.65 N-m (41 lbs-in).

c. Similarly, on the rear side towards the chassis, insert five 12–24 Pan head mounting screw for slide rails (48-101524-01) and tighten them to a torque value of 4.65 N-m (41 lbs-in).

For the adapter portion which is towards the rack, you must fit all the six screws on the front and rear side.

Figure 13: Four Post Slider Integration in the 23" Rack



1	23" rack to 19" rack adapter (700-116871-01)

Install the Two Post Slider into an ETSI Rack

Use this procedure to install the two post slider into an ETSI rack.

Before you begin

Tools required:

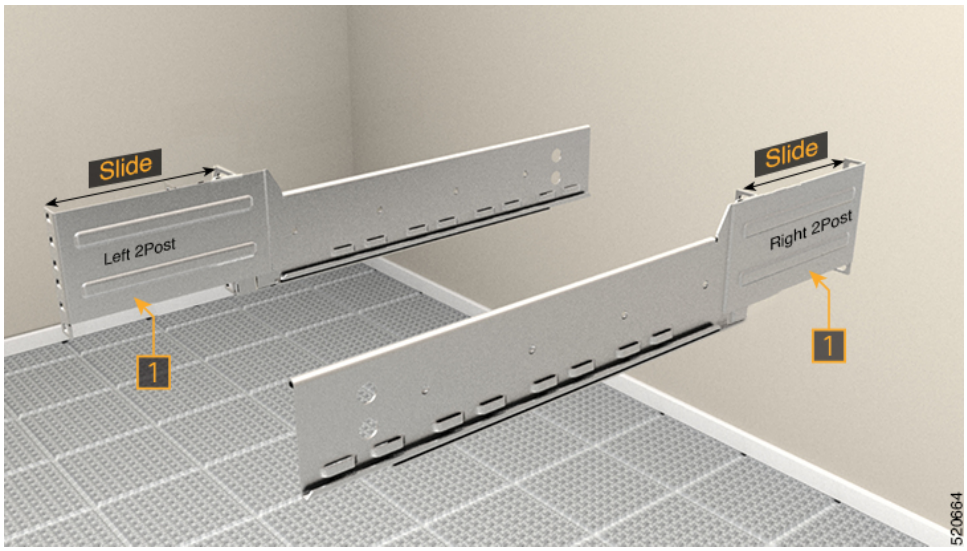
- Customer-supplied screwdriver
- Two-post left slide rail (800-48743-01)
- Two-post right slide rail (800-48744-01)
- ETSI rack to 19" rack adapter (700-116872-01)
- 12–24 Pan head mounting screw for slide rails (48-101524-01)

Procedure

Step 1 Identify the two post slider and adjust the length of the slider (3" to 5").

Slide the inner sliders and adjust the length to mate with the rack surface.

Figure 14: Two Post Slider Identification



1	Four-post right slide rail (800-48786-01) Check for marking on the sliders; slide the inner sliders to adjust the length.

Step 2 Integrate the two post slider with the ETSI rack using the ETSI rack to 19" rack adapter (700-116872-01).

The formed surface must always face the inner side of the rack post.

a. On the front side, insert only one 12–24 Pan head mounting screw for slide rails (48-101524-01) at the top-most screw hole of the slider.

b. Tighten the screw to a torque value of 4.65 N-m (41 lbs-in).

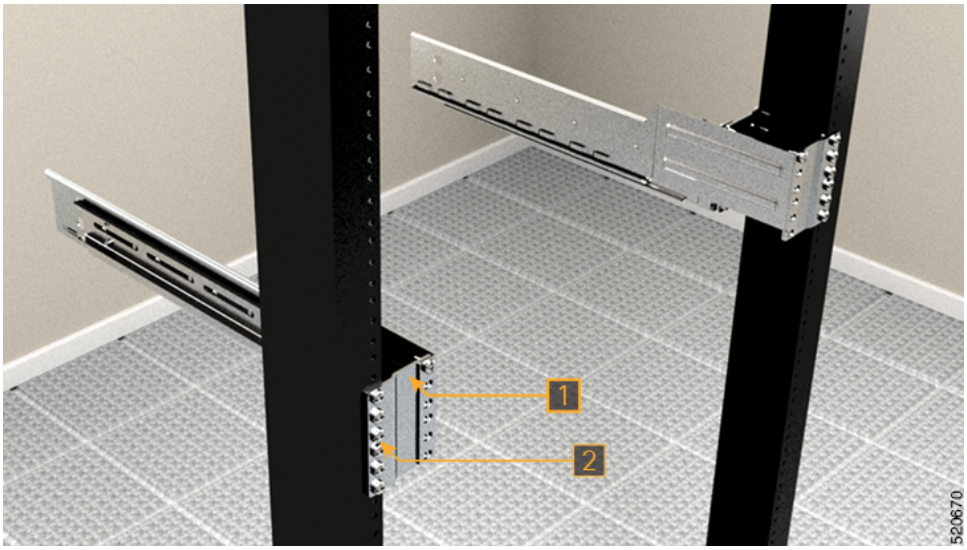
c. Similarly, on the rear side, insert three 12–24 Pan head mounting screws for slide rails (48-101524-01) and tighten them to torque value of 4.65 N-m (41 lbs-in).

a. On the front side, insert only the top-most screw of the slider (48-101524-01).

b. Tighten the screw to torque value of 4.65 N-m (41 lbs-in).

c. Similarly, on the rear side, insert three screws (48-101524-01) and tighten them to torque value of 4.65 N-m (41 lbs-in).

Figure 15: Two Post Slider Integration - ETSI Rack



1	ETSI rack to 19" rack adapter (700-116872-01)
2	12–24 Pan head mounting screw for slide rails (48-101524-01)

Install the Four Post Slider into an ETSI Rack

Use this procedure to install a four post slider into an ETSI rack.

Before you begin

Tools required:

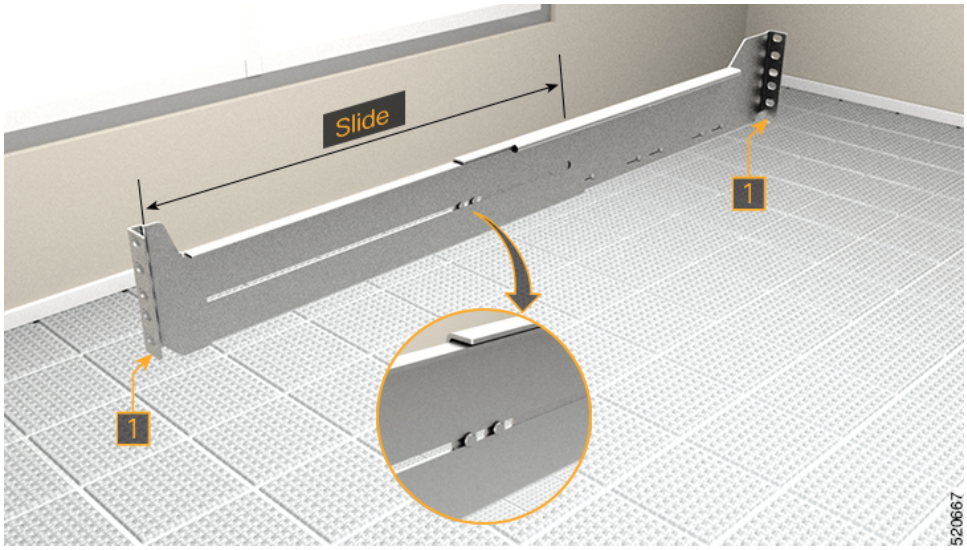
- Customer-supplied screwdriver
- Four-post right slide rail (800-48786-01)
- Four-post left slide rail (800-48787-01)
- ETSI rack to 19" rack adapter (700-116872-01)
- 12–24 Pan head mounting screw for slide rails (48-101524-01)

Procedure

Step 1 Identify the four post slider and adjust the length of the slider.

Slide the inner slider arm and adjust the length to mate with the rack surface.

Figure 16: Four Post Slider Identification



1	Four-post right slide rail (800-48786-01) Slide and adjust the length of the slider arm.

Step 2 Integrate the four post slider with the ETSI rack using the ETSI rack to 19" rack adapter (700-116872-01).

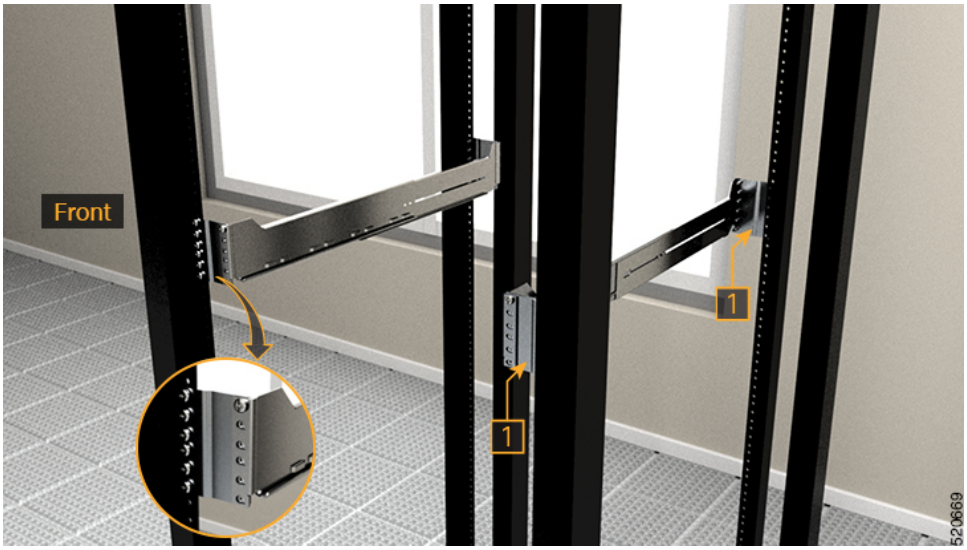
The formed surface must always face the inner side of the rack post.

a. On the front side of the ETSI rack to 19" rack adapter (700-116872-01), insert only one 12–24 Pan head mounting screw for slide rails (48-101524-01) at the top-most screw hole of the slider.

b. Tighten the screw to a torque value of 4.65 N-m (41 lbs-in).

c. Similarly, on the rear side, insert five 12–24 Pan head mounting screw for slide rails (48-101524-01) and tighten them to a torque value of 4.65 N-m (41 lbs-in).

Figure 17: Four Post Slider Integration in the ETSI Rack



1	ETSI rack to 19" rack adapter (700-116872-01)

General Power and Grounding Requirements

General power and grounding requirements are:

- Installation of the routing system must follow national and local electrical codes:
  - In the United States: United States National Fire Protection Association (NFPA) 70 and United States National Electrical Code (NEC).
  - In Canada: Canadian Electrical Code, part I, CSA C22.1.
  - In other countries: International Electrotechnical Commission (IEC) 60364, parts 1 through 7.
- Two separate and independent AC or DC power sources are needed to provide N+N redundancy for system power. Each power source requires its own circuit breaker.
- Each power source must provide clean power to the site. If necessary, install a power conditioner.
- The site must provide short-circuit (over-current) protection for devices.
- Proper grounding is required at the site to ensure that equipment is not damaged by lightning and power surges.

Note The unit must be grounded using the Protective Earthing grounding point of the system.

- Site power planning must include the power requirements for any external terminals and test equipment you will use with your system.

Note Be sure to review the safety warnings in the Cisco Network Convergence System *Regulatory Compliance and Safety Information for the Cisco Network Convergence System 1014* before attempting to install the chassis.

Ground the Cisco NCS 1014 Chassis

Use this task to ground the Cisco NCS 1014 chassis. In the installation of the chassis, connect the ground lug first.

The NCS 1014 chassis has one grounding point at the front. The following warning label is affixed on the chassis.

Tip If you are using the NCS1K14-S-KIT accessory kit, an alternative grounding point is provided to ground the NCS 1004 chassis at the rear of the chassis.

Warning High leakage current, earth connection essential before connecting supply.

Caution When terminating the frame ground, do not use soldering lug connectors, screwless (push-in) connectors, quick connect connectors, or other friction-fit connectors.

Before you begin

If you are using the Protective Earth Grounding point at the front of the chassis and the air filter, make sure you install the air filter first and then install the ground lug onto the Cisco NCS 1014 chassis. See Install the Air Filter.

Procedure

Step 1 Verify that the office ground cable is connected to the top of the rack and the office ground, according to local site practice.

Step 2 Remove any paint and other nonconductive coatings from the surfaces between the shelf ground and bay frame ground point. If you are attaching the double hole ground lug to the rack rail, then clean the mating surfaces and apply the appropriate antioxidant compound.

Step 3 Attach one end of the ground cable (no. 6 AWG cable) to the double hole lug connector.

Step 4 Align the double hole ground lug to the chassis ground point at the front or slide rail at the rear of the chassis.

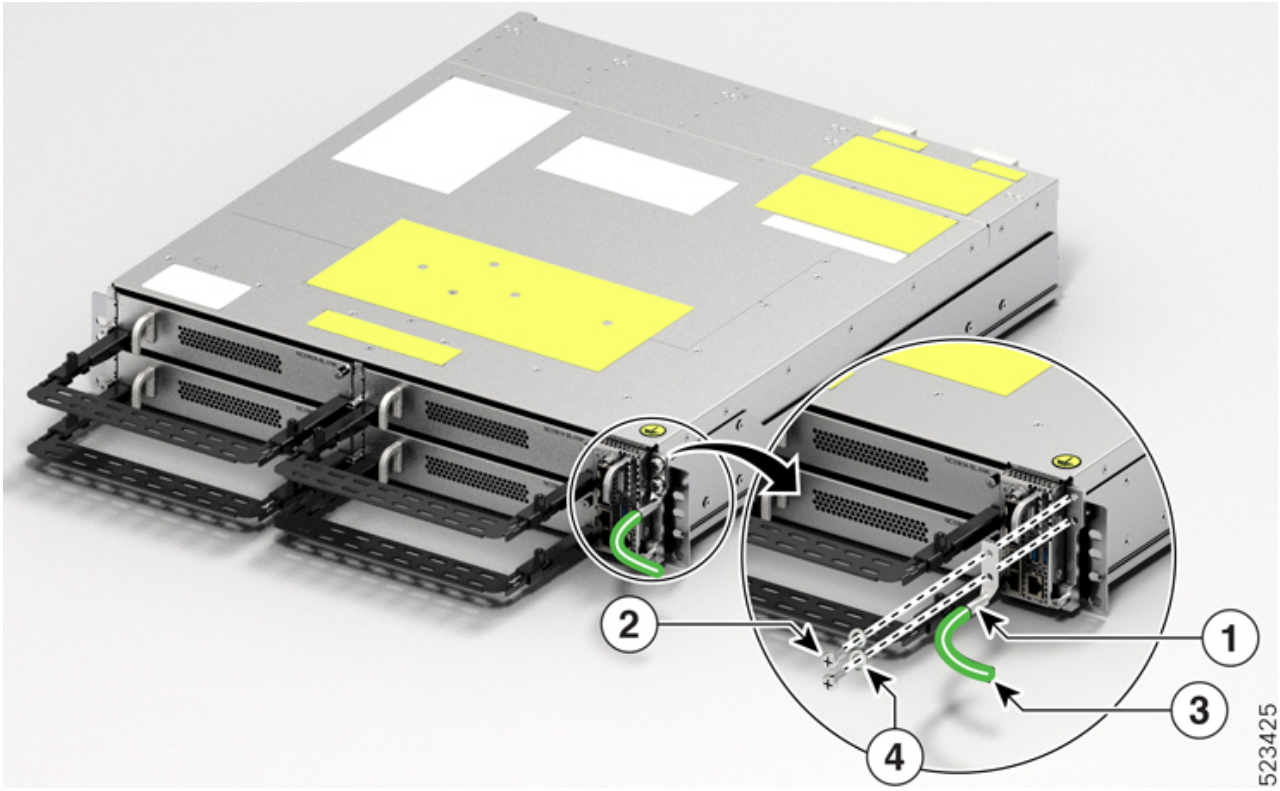
To ground the chassis at front, perform the steps:

a. Align the double hole ground lug to the chassis ground point.

b. Insert the two M5 pan-head screws for ground lug (48-1169-01) through the two external tooth lock washers for ground lug (49-100371-01) into the double hole lug for chassis (32-100125-01).

c. Tighten the two M5 pan-head screws (48-1169-01) to a torque value of 3.1 N-m (27.4 lbs-in).

Figure 18: Front grounding point - attaching NCS 1014 ground lug to the chassis



1	Double hole lug for chassis (32-100125-01)	3	Ground cable
2	M5 pan-head screw for ground lug (48-1169-01)	4	External tooth lock washer for ground lug (49-100371-01)

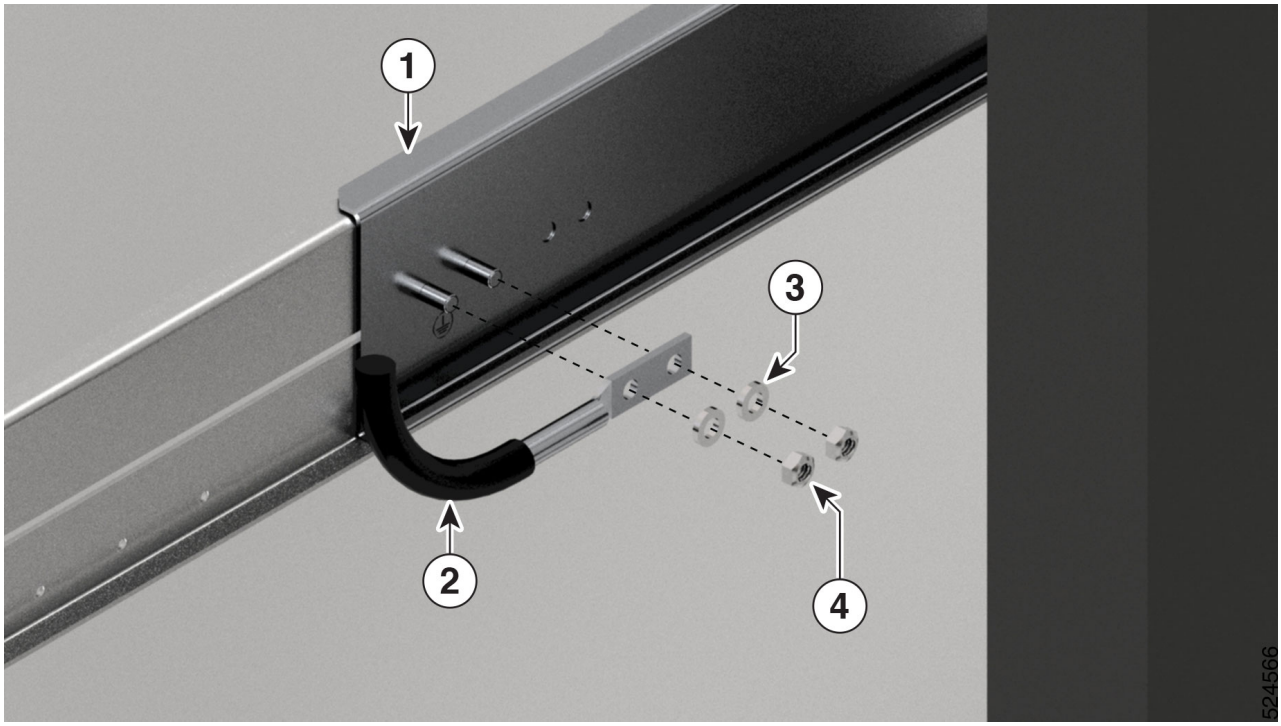
To ground the chassis at rear, perform the steps:

a. Using the two studs inside the slider rail, align the double hole ground lug for slider rail to the slider rail ground point and push it onto the preinstalled studs in the slider rail.

b. Push the two external tooth lock washers for ground lug (49-100371-01) and the two M5 locking hex nuts for ground lug (49-0510-01) through the preinstalled studs to lock the double hole lug for slider rail (32-100132-01).

c. Tighten the two M5 hex lock nuts for ground lug (49-0510-01) to a torque value of 3.1 N-m (27.4 lbs-in).

Figure 19: Rear grounding point - attaching NCS 1014 ground lug to the 30-40" slide rail



1	Four-post (30-40") left slide rail (800-51869-01)	3	External tooth lock washers for ground lug (49-100371-01)
2	Ground cable	4	M5 hex lock nuts for ground lug (49-0510-01)

Remember
The orientation of the lug cable for

- front chassis grounding is always at the bottom side.
- rear slider rail grounding is always outwards.

Step 5 Attach the other end of the ground cable to the bay frame using a dual-hole lug connector, according to the equipment rack frame specifications.

Attach the Fiber Management Bracket to the Slider Rail

If you are attaching the fiber management bracket from NCS1K14-S-KIT, use this procedure to attach the bracket to the four-post 30–40" slider rail.

Before you begin

Install the chassis and its modules

Tools required:

- Customer-supplied screwdriver
- Fiber management bracket (700-136629-01) from NCS1K14-S-KIT
- M3 Phillips flat-head mounting screws for fiber management bracket (48-102306-01)

Procedure

Step 1 Before attaching the fiber management bracket, make sure the bracket flanges point upwards to orient the bracket.

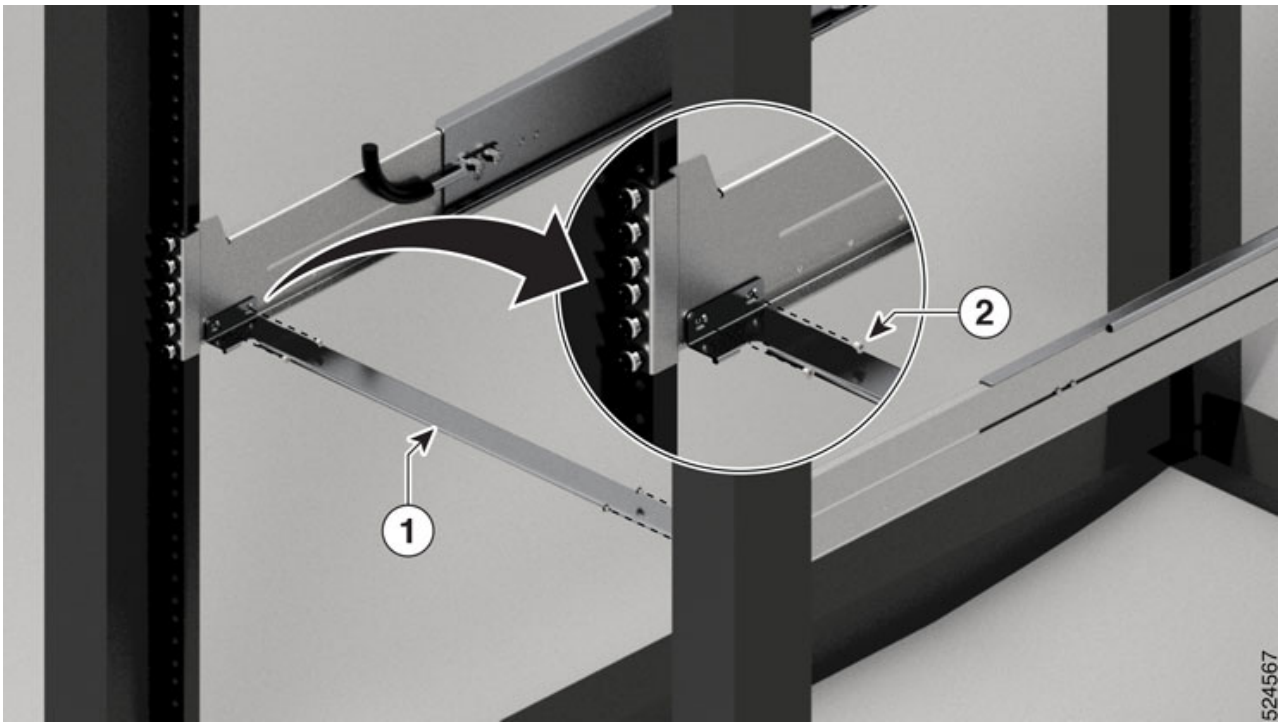
Step 2 Align the screw holes of the fiber management bracket with the screw holes of the slider rail.

Tip
You can align the fiber management bracket (700-136629-01) in any position in the slider rail. The slider rail allows attaching the fiber management bracket in five different positions.

Step 3 From the inside of the fiber management bracket, insert the two M3 Phillips flat-head mounting screws for the fiber management bracket (48-102306-01) through the bracket screw holes into the slider rail to hold the bracket with the slider rail.

Step 4 Using a screwdriver, tighten the screws to a torque value of 0.65 N-m (5.75 lbs-in).

Figure 20: Attaching the M3 Phillips flat-head mounting screws to the fiber management bracket



1	Fiber management bracket (700-136629-01)	2	M3 Phillips flat-head mounting screw for fiber management bracket (48-102306-01)

Step 5 Similarly, on the other slider rail, insert the remaining two M3 Phillips flat-head mounting screws (48-102306-01) and tighten them to a torque value of 0.65 N-m (5.75 lbs-in).