Installation

This chapter contains the following sections:

Installation Notes and Warnings for the Cisco UCS 5108 Server Chassis

The following notes and warnings apply to all installation tasks:

Note Before you install, operate, or service the system, see the Regulatory Compliance and Safety Information for Cisco UCS for important safety information.

Warning IMPORTANT SAFETY INSTRUCTIONS

This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. Use the statement number provided at the end of each warning to locate its translation in the translated safety warnings that accompanied this device. Statement 1071

SAVE THESE INSTRUCTIONS

Warning This unit is intended for installation in restricted access areas. A restricted access area can be accessed only through the use of a special tool, lock and key, or other means of security. Statement 1017

Warning Only trained and qualified personnel must be allowed to install, replace, or service this equipment. Statement 1030

Rack Requirements

This section provides the requirements for installing in a standard open rack, assuming an external ambient air temperature range of 50 to 95°F (10 to 35°C):

Note Do not use racks that have obstructions. These obstructions could impair access to field-replaceable units (FRUs).

The Cisco R Series Racks are an ideal choice. If other racks will be used, the rack must be of the following type:

- Standard 19-inch (48.3 cm) four-post EIA rack, a minimum of 39.4 inches (100 cm) deep, with mounting rails that conform to English universal hole spacing per section 1 of ANSI/EIA-310-D-1992.
- The mounting holes of the rails in the rack must be square (unless the optional round hole adapter kit is used).
- The tool-less rack-mount kit shipped with the chassis is required. The adjustable rack rails shipped with each enclosure extend from 29 inches (73.66 cm) to 35 inches (88.9 cm)
- Front and rear doors—If your server rack includes closing front and rear doors, the doors must have 65 percent open perforated area evenly distributed from top to bottom to permit adequate airflow.

Caution Always use blanking panels to fill all remaining empty front panel U-spaces in the rack. This arrangement ensures proper airflow. Using a rack without blanking panels results in improper cooling that can lead to thermal damage.

The rack must also meet the following requirements:

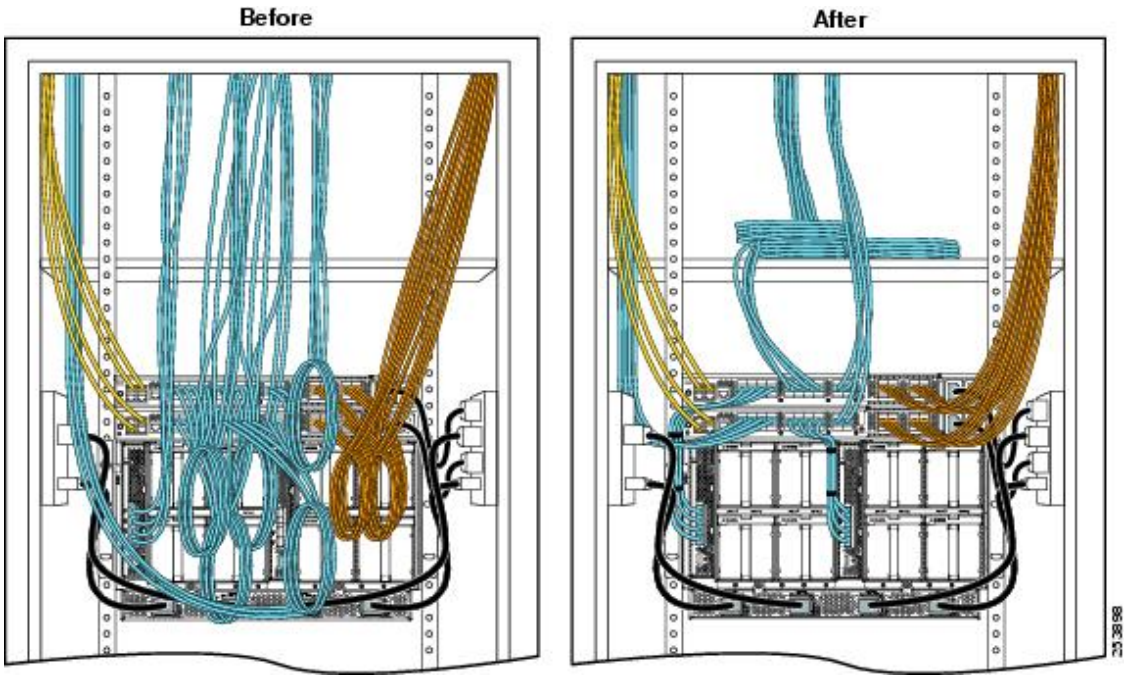
- The minimum available vertical rack space per chassis must be six RU (rack units), equal to 10.5 inches (26.7 cm).

Cable Management

To help with cable management, allow additional space in the rack above and below the chassis to make it easier to route copper cables (plus up to eight copper cables per Cisco UCS 5108 server chassis) through the rack.

Cable management can be an important factor in preventing overheating issues. In the following figure, the “before“ illustration shows cables blocking the rear of the chassis, and preventing the fans from exhausting warm air from the chassis. This situation causes failed DIMMs in the blade servers, and seemingly random server shutdowns when internal temperatures exceed specification. Use cable ties and other wiring practices to keep the rear of the chassis unobstructed as shown in the “after“ illustration.

Figure 1: Cable Management



Airflow Considerations

Airflow through the chassis is from front to back. Air enters the chassis through the blade servers and power supply grills at the front of the chassis and exits through the fan modules on the back of the chassis. To ensure proper airflow, follow these guidelines:

- Maintain ambient airflow throughout the data center to ensure normal operation.
- Consider the heat dissipation of all equipment when determining air-conditioning requirements. Do not allow the exhaust of one system to be the intake for another system.
- When evaluating airflow requirements, take into consideration that the hot air generated by equipment at the bottom of the rack can be drawn in the intake of the equipment above.
- Make sure that the exhaust at the rear of the chassis is unobstructed for at least 24 in. (61 cm). This includes obstruction due to messy cabling practices.
- Some blade servers ship with internal air baffles that are placed over the DIMMs and CPUs. They are used to channel airflow to where it is needed the most. The blades are designed to operate with air baffles installed and the system will not cool correctly if they are not installed.
- If an enclosed rack is used, the front door must be 65 percent perforated to ensure adequate airflow to the servers.

Moving Server Chassis

When lifting the chassis, be aware of its weight, and follow these guidelines:

Caution Do not try to lift the chassis using the handles on the side. These handles are intended only for moving and adjusting the chassis position.

- Never lift the chassis alone—Always use two people to lift the chassis. If available, use a scissor jack or other lifting device designed for installing heavy equipment into data center racks.
- Disconnect all power and external cables before lifting the chassis.
- Remove all FEXes, power supplies, fans, and servers from the chassis before lifting.
- Ensure that your footing is solid and the weight of the system is evenly distributed between your feet.
- Lift the system slowly, keeping your back straight. Lift with your legs, not with your back. Bend at the knees, not at the waist.

Caution Do not remove the Power Distribution Unit (PDU) located at the back of the chassis.

Installation Guidelines

When installing the chassis, follow these guidelines:

- Plan your site configuration and prepare the site before installing the chassis. See Site Planning and Maintenance Records for the recommended site planning tasks. For details, see the Cisco UCS Site Preparation Guide.
- Record the information listed in Site Planning and Maintenance Records as you install and configure the chassis.
- Ensure that there is adequate space around the chassis to allow for servicing the chassis and for airflow.
- Ensure that the air-conditioning meets the heat dissipation requirements listed in Technical Specifications
- Ensure that the cabinet or rack meets the requirements listed in Rack Requirements, on page 2.

Note Jumper power cords are available for use in a rack. See Specifications for the Cisco UCS 5108 Blade Server Chassis Power Supply Units.

- Ensure that the site power meets the power requirements listed in Technical Specifications. We recommend that you use a UPS to protect the UCS system. Using an unprotected supply exposes you to a risk of system failure due to input supply voltage variations or failures.

  Avoid UPS types that use ferroresonant technology. These UPS types can become unstable with systems such as the Cisco UCS, which can have substantial current draw fluctuations due to fluctuating data traffic patterns.
- Ensure that circuits are sized according to local and national codes. For North America, the power supply requires a 20 A circuit.

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

- Use the following torque values when installing the chassis:
  - 10-32 screws: 20 in-lb

Required Equipment

Before you begin the installation, ensure that you have the following items:

- Number 1 and number 2 Phillips-head screwdrivers with torque measuring capabilities
- Tape measure and level
- ESD wrist strap or other grounding device
- Antistatic mat or antistatic foam

Unpacking and Inspecting the Chassis

Caution When handling chassis components, wear an ESD strap and handle modules by the carrier edges only.

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

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

Procedure

Step 1 Remove the chassis from its cardboard container. Save all packaging material.

Step 2 Compare the shipment to the equipment list provided by your customer service representative and verify that you have received the following items:

- Any printed documentation
- Tool-less rack-mount kit (N20-CRMK2=)—mounting rails can be installed in a rack without the use of tools. The optional round hole adapter kit (N20-CRMK2-RHA=) does require tools.
- ESD wrist strap
- Cables with connectors (including the N20-BKVM=, which is the KVM/local I/O console dongle)
- Any optional items ordered

Step 3 Verify that all unused blade slots and power supply bays have blank covers.

Attaching the Round Hole Adapter Kit to the Rails (Optional)

Note The chassis tool-less rails are designed for racks that have square mounting holes. You must use the round hole adapters (N20-CRMK2-RHA=) to install the chassis in racks that have round mounting holes.

This round hole adapter kit allows you to adapt the rail kit (N20-CRMK2=) to install into rack (front and/or rear) posts that use either threaded or non-threaded round holes. Four adapters in the kit are for adapting the rail kit to install into rack posts with threaded round holes, and the other four adapters in the kit are for adapting the rail kit to install into rack posts with non-threaded round holes. You can use a combination of adapters based on the type of holes in the rack posts. Various sizes and lengths of screws are also included in the kit.

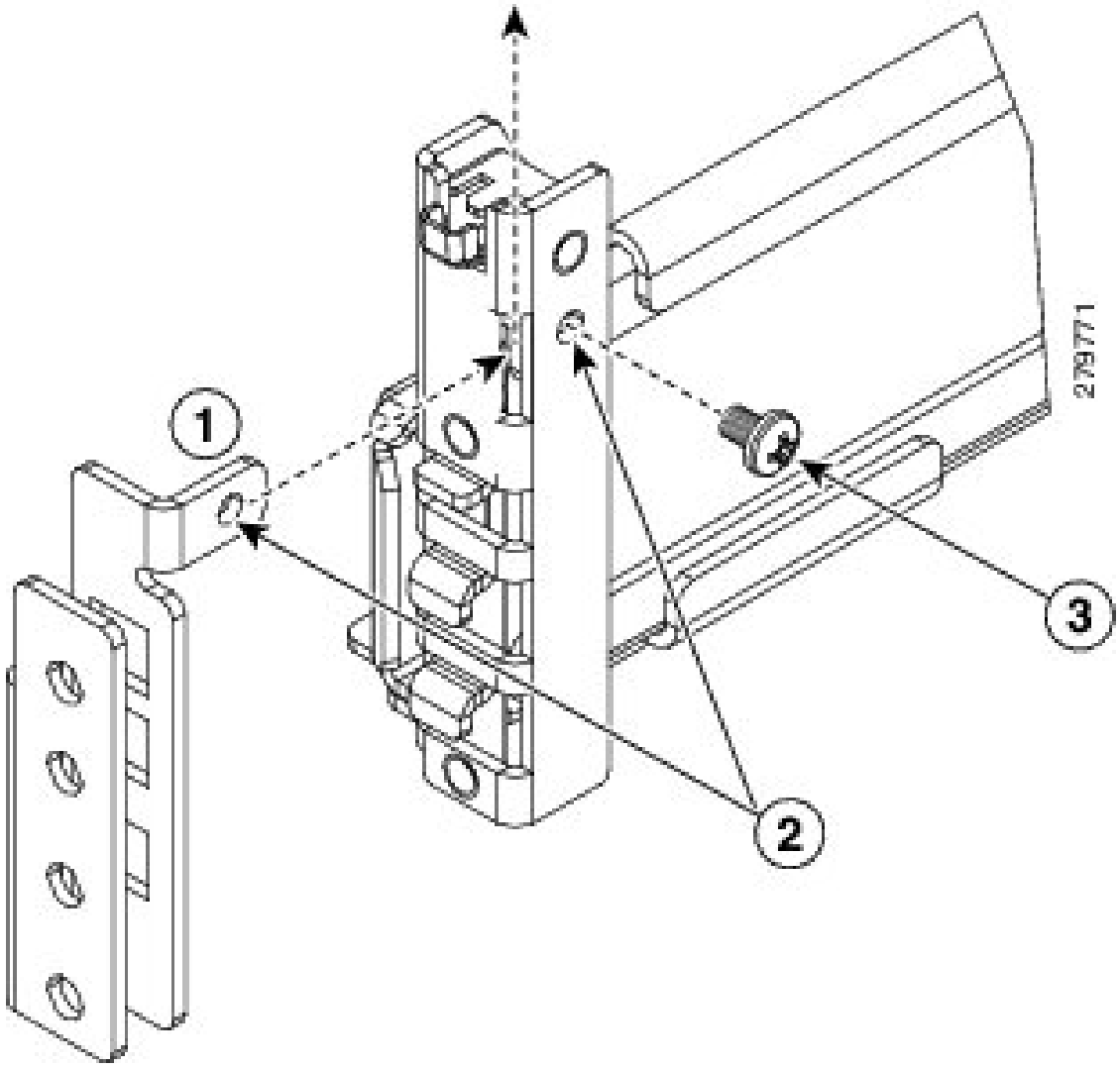
Procedure

Step 1 Insert the adapter tab into the mounting rail as shown in callout 1.

Step 2 Slide the adapter up to lock it into position as shown in callout 2.

Step 3 Secure the adapter into place using the provided pan-head screw as shown in callout 3.

Figure 2: Attaching the Round Hole Adapter (Optional)



Step 4 Repeat steps 1to 3 for the other three adapters.

Installing the Chassis

This section describes how to install the chassis. This two part process consists of installing the rails into the rack and then installing the chassis into the rack and on to the rails.

⚠

Caution Never attempt to lift the chassis by using an installed module's handle as a grip point. only use the handles on the sides of the chassis.

Caution If the rack has wheels, ensure that the brakes are engaged, the stabilizing pads are extended, or that the rack is otherwise stabilized.

Table 1: Contents of the Cisco UCS 5108 Server Chassis Rack-Mount Kit (N20-CRMK2=)

Quantity	Part Description
1	Left tool-less rack mount rail
1	Right tool-less rack mount rail
6	10-32 X 0.75 Phillips round washer head screws
6	10-32 X 0.125 cage nuts

Table 2: Contents of the Cisco UCS 5108 Server Round Hole Adapter Kit (N20-CRMK2-RHA=)

Quantity	Part Description
4	Round hole adapters (threaded)
4	Round hole adapters (un-threaded)
4	Adapter securing screws
16	Phillips head screws for securing the rails to the rack

Warning The plug-socket combination must be accessible at all times, because it serves as the main disconnecting device. Statement 1019

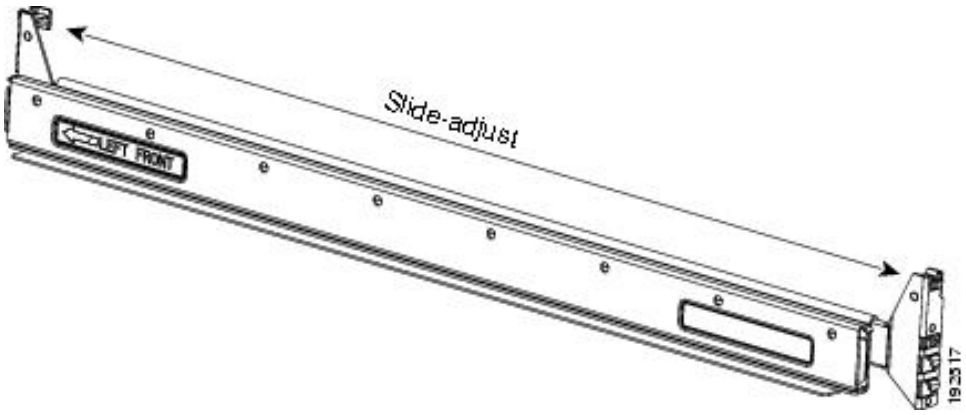
Installing the Rails

Procedure

Step 1 Remove the mounting template (Cisco 78-19093-01) from the accessory box. The template is designed to show you the proper holes within which the rails and cage nuts should be placed. Once the rack holes line up with the template, you should mark the holes so that their position is known after removing the template.

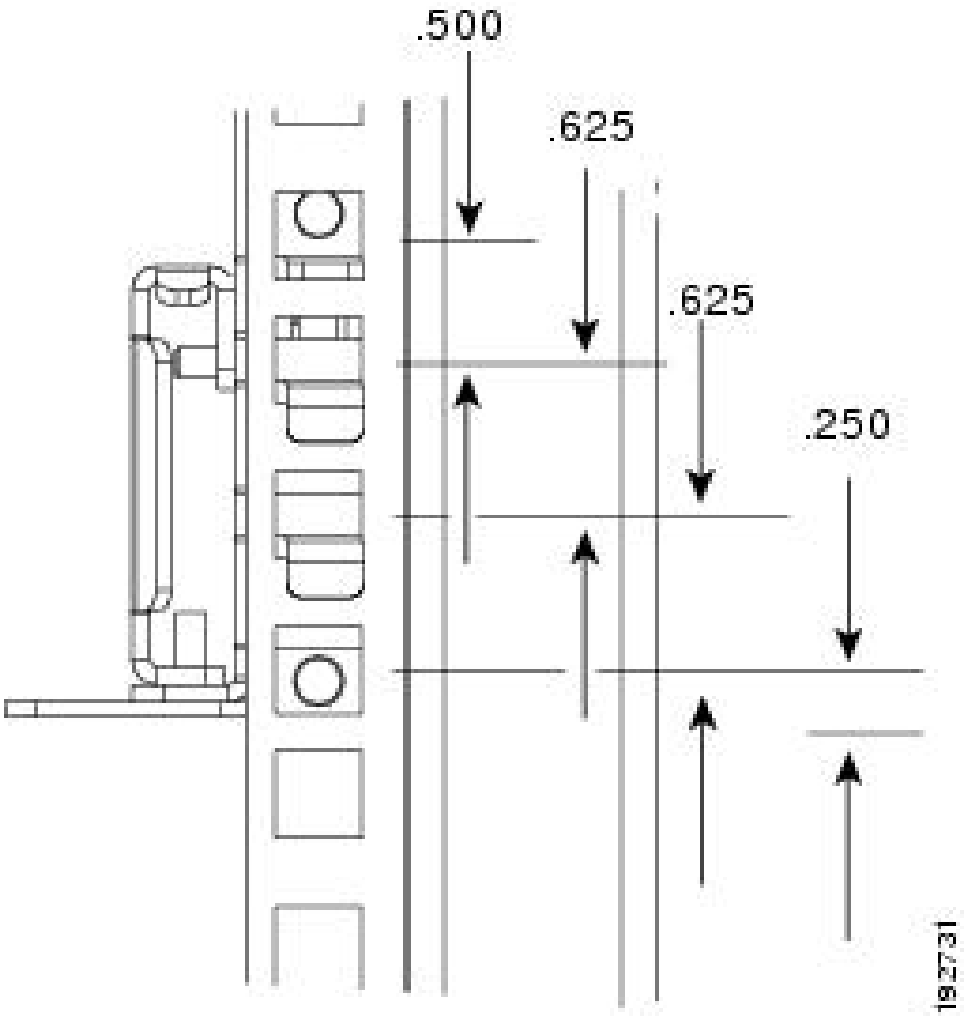
Step 2 Adjust the length of the rail by sliding the ends of the rail back and forth until they match the depth of the rack.

Figure 3: Adjusting the Tool-less Rack Mount Rail



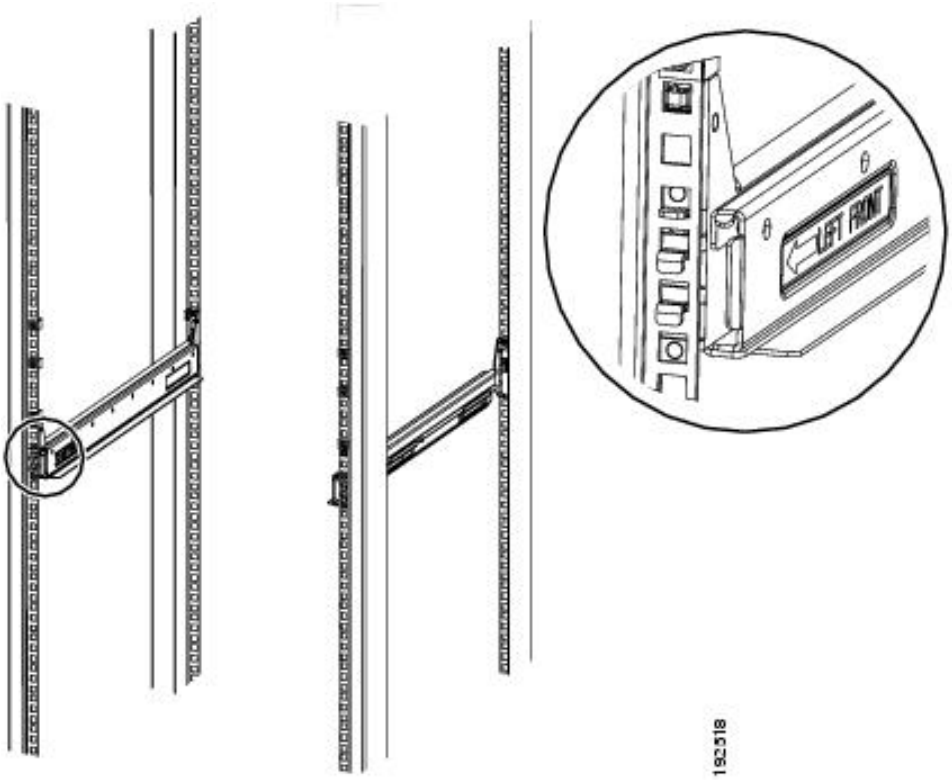
Step 3 Place the two hooks at each end of the rail into the first two holes at a rack unit boundary.

Figure 4: Hole Spacing for the Tool-less Rails in Relationship to a Rack Unit



The following figure shows a rail mounted into a rack in the proper position with respect to a rack-unit boundary. Measurements are in inches between the centers of the holes.

Figure 5: Installing Tool-less Chassis Support Rails into the Rack



Step 4 Press down firmly on the rail until the hooks seat firmly and securely into the holes, and the spring clip latches into place.

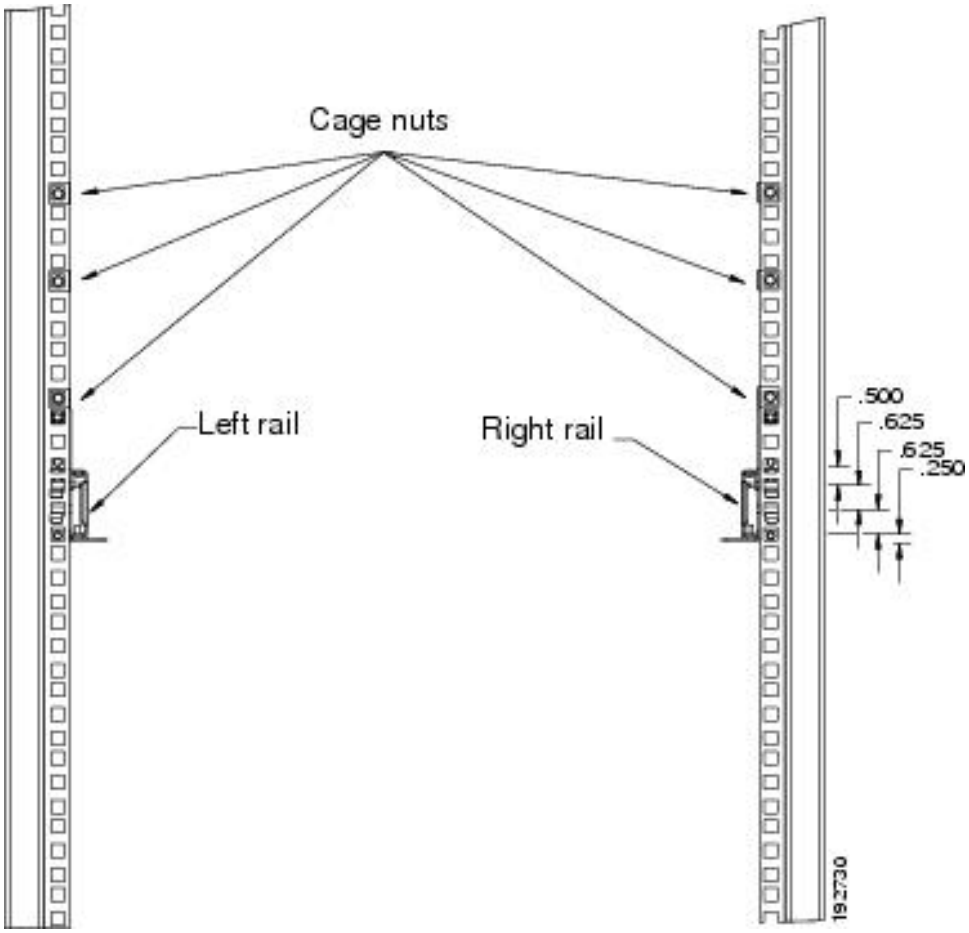
Step 5 Follow the same procedure to install the other rack rail.

Step 6 Use a tape measure and level to verify that the rack rails are horizontal and at the same height.

Step 7 Insert the cage nuts on to the rack in the needed square holes as shown below. When the rails are installed on a rack unit boundary, the first two cage nuts are installed into the seventh holes above the rails' horizontal plates. The next two cage nuts are installed into the fifth holes above the first cage nut. Finally, the two cage nuts are installed into the fourth holes above the second cage nuts.

Figure 6: Placement of Rails and Cage Nuts with Respect to the Rack Unit Boundary

Figure 7: Proper Placement for the Rails and Cage Nuts



Step 8 Remove all power supplies, fan assemblies, server blades, and fabric extenders to lighten the chassis. Even with devices removed, the chassis weighs 90 lbs (40.83 kg).

Installing the Round Hole Adapter Kit

Before installing the chassis in a round hole rack, prepare the rails by adding the adapter kit according to the instructions in Attaching the Round Hole Adapter Kit to the Rails (Optional), on page 6.

Procedure

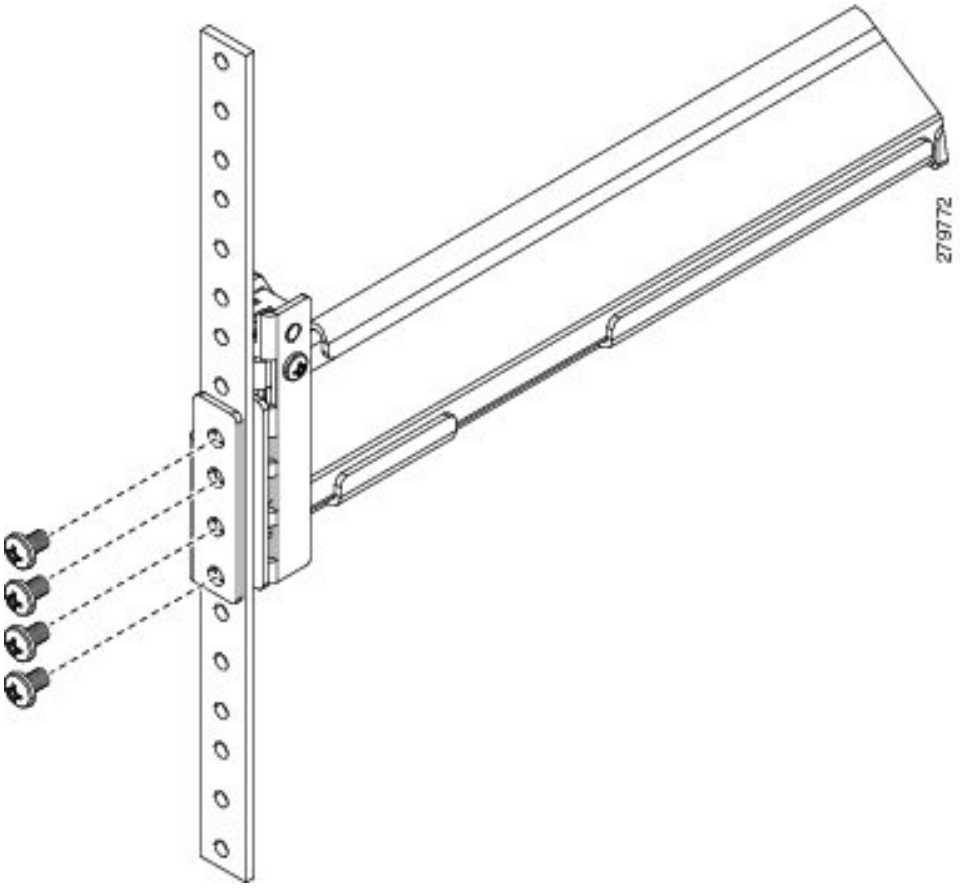
Step 1 Remove the mounting template (Cisco 78-19093-01) from the accessory box. The template is designed to show you the proper holes within which the rails and cage nuts should be placed. Once the rack holes line up with the template, you should mark the holes so that their position is known after removing the template.

Step 2 Adjust the length of the rail by sliding the ends of the rail back and forth until they match the depth of the rack.

Step 3 Place the adapters and rails even with a rack boundary at each end of the rail.

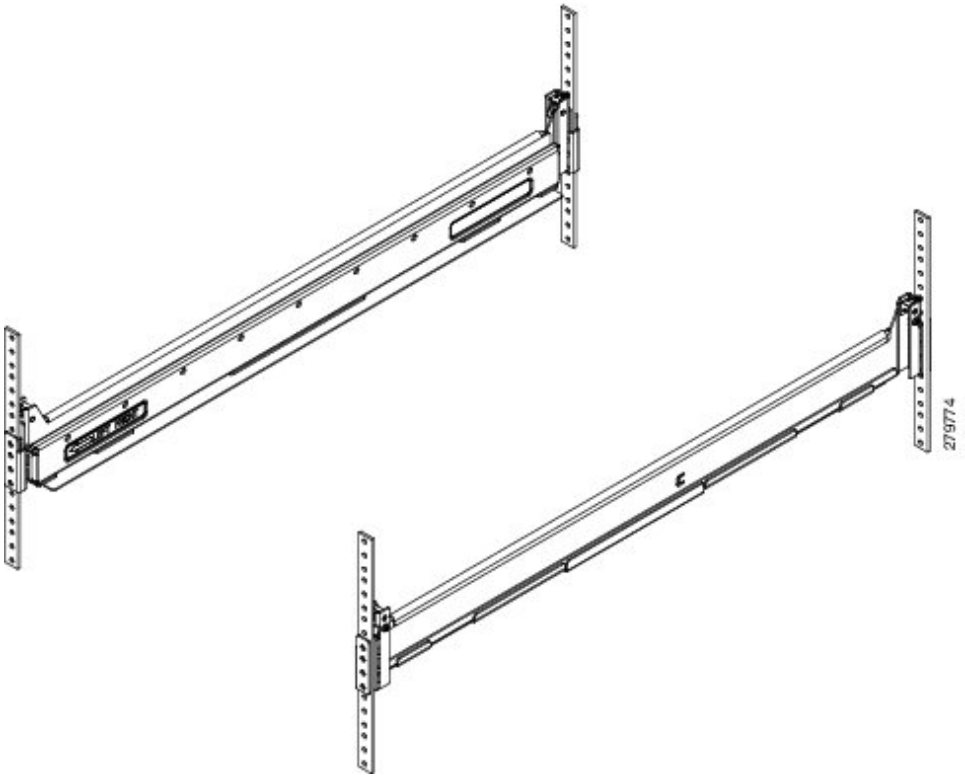
Step 4 Secure the rail to the rack with the provided pan head screws as shown below.

Figure 8: Attaching the Mounting Brackets to a Round Hole Rack



Step 5 Follow the same procedure to install the other rack rail as shown below.

Figure 9: Round Hole Adapter and Rails Installed in a Rack



Step 6 Use a tape measure and level to verify that both rack rails are horizontal and at the same height.

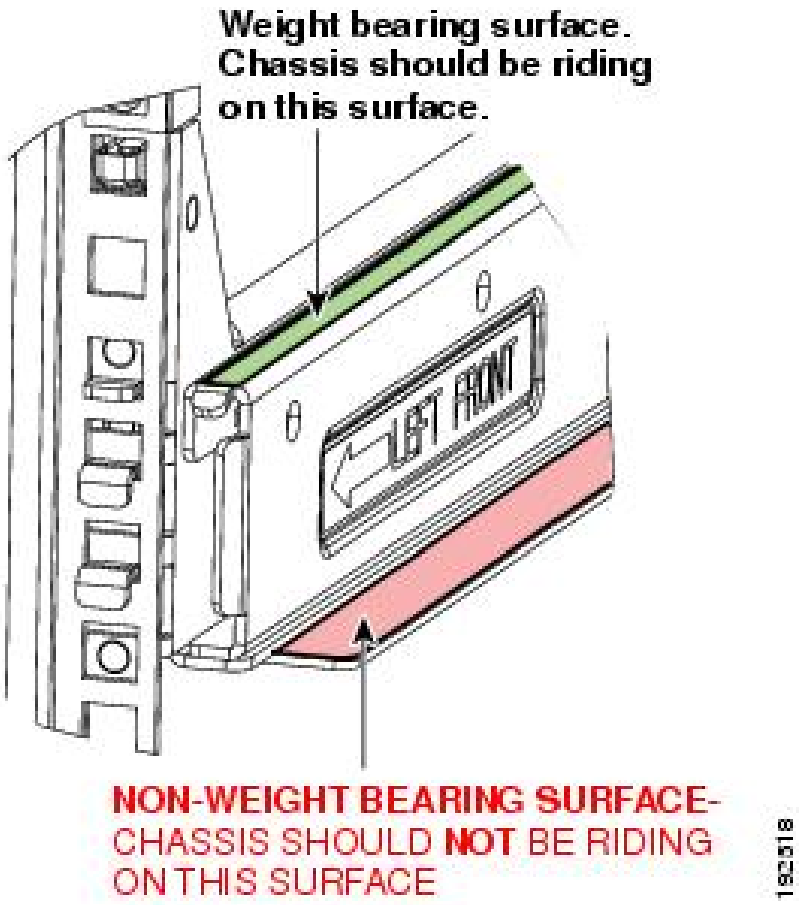
Step 7 Remove all power supplies, fan assemblies, server blades, and I/O modules to lighten the chassis. Even with devices removed, the chassis weighs 90 lbs (40.83 kg).

Inserting the Chassis into the Rack

Procedure

Step 1 With the help of another person (or special lifting equipment), lift the chassis and place it on the mounting rail as shown.

Figure 10: Mounting Rail Weight Distribution (Square Hole Mount Shown)

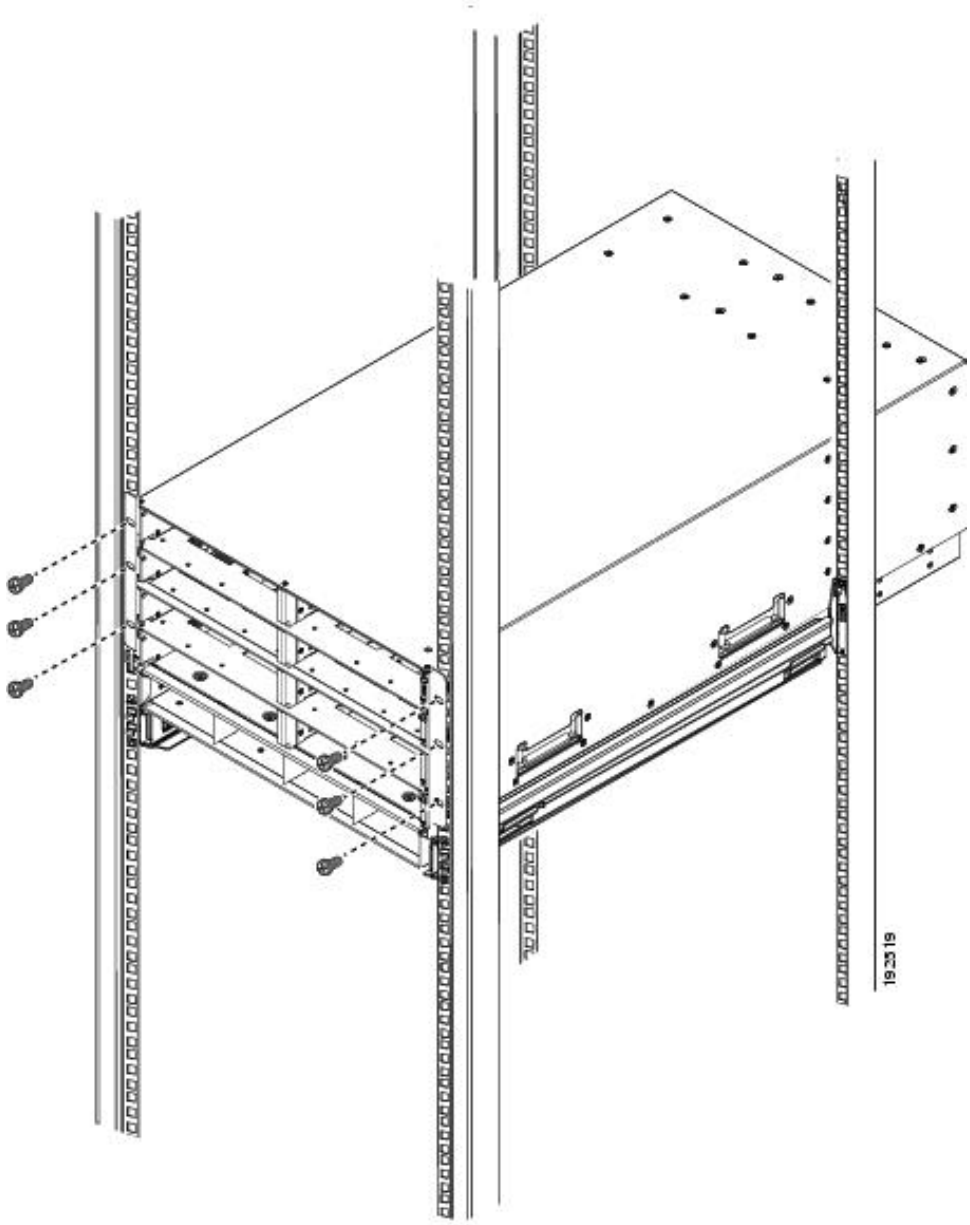


Caution The mounting rails may come loose and cause the chassis to fall if the weight is resting on the wrong surface. Make sure that the bottom of the chassis is resting on the correct rail surface.

Step 2 Slide the chassis into the rack until the front flange is flat against the cage nuts. (Cage nuts are not needed in round hole racks.)

Step 3 Using the six Phillips round washer head screws and the cage nuts (used in square hole installations), secure the chassis by its flanges to the rack as shown.

Figure 11: Securing the Chassis Into the Rack

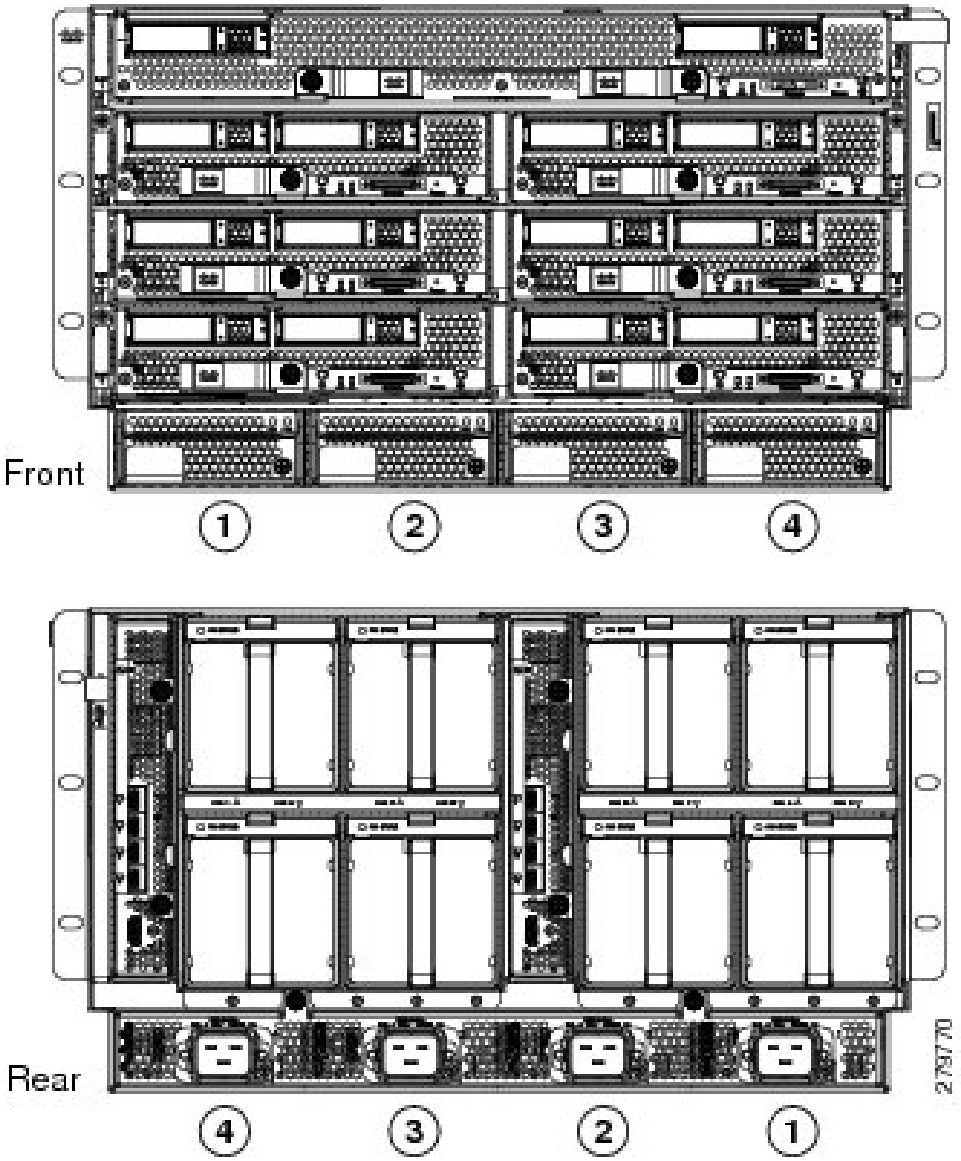


Step 4 Replace all servers, fans, and power supplies back into their respective chassis slots.

Step 5 To power up the chassis, connect the appropriate AC power cables to the inlet connector corresponding to each installed power supply, and then connect the other end of the cables to the power source. For a DC installation, see Connecting a DC Power Supply, on page 19.To determine the number of power supplies needed for a given configuration, use the Cisco UCS Power Calculator tool.

Note Both grids in a power redundant system should have the same number of power supplies. If your system is configured for grid redundancy, slots 1 and 2 are assigned to grid 1 and slots 3 and 4 are assigned to grid 2. If only two power supplies (PS) are in a redundant- mode chassis, they should be in slots 1 and 3. Slot and cord connection numbering is shown below.

Figure 12: Power Supply Bay and Connector Numbering

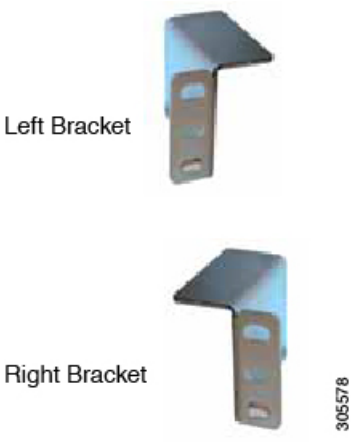


Step 6 Connect the server chassis to the fabric interconnect as described in Proper FEX and Fabric Interconnect Port Connectivity, on page 24.

Installing Rear Brackets

Before shipping a preracked UCS 5108 chassis or UCS Mini chassis, you must install a pair of integration brackets (RACK-HW-016) to secure the rear of the chassis to the rack rail. The following figure shows the brackets.

Figure 13: Rear Integration Brackets



Use cage nuts and mounting screws to secure the brackets to the rack rail.

From the rear of the rack, the rear brackets should be installed as follows:

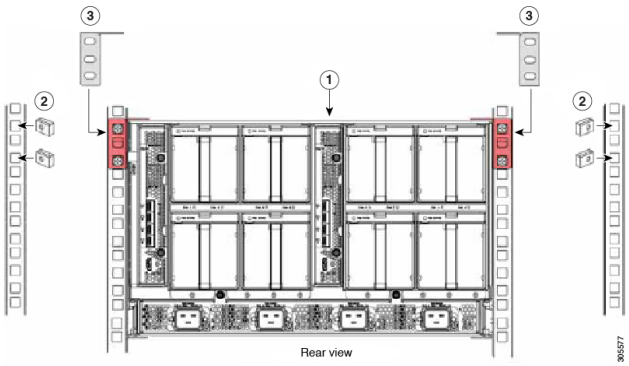
Procedure

Step 1 Install the UCS 5108 or UCS Mini chassis. See callout 1 in the following figure.

Step 2 Attach the supplied cage nuts to the rack rails for the left and right brackets. See callout 2. The tightening torque is 45 lb-in (5.0 N-m).

Step 3 Secure the brackets using the supplied screws. See callout 3.

Figure 14: Installing the Rear Brackets to the Chassis



Connecting a DC Power Supply

This section describes how to connect power to the rear PDU terminals on the DC version chassis (UCSB-5108-DC) corresponding to a UCS 5108 DC power supply (UCSB-PSU-2500DC48).

Required Tools

You must have the following tools to perform this procedure:

- A Phillips screwdriver
- A 10-mm wrench or socket
- Connectors and wire for the DC circuit or circuits

DC Power Installation Procedure

Warning When stranded wiring is required, use approved wiring terminations, such as closed-loop or spade-type with upturned lugs. These terminations should be the appropriate size for the wires and should clamp both the insulation and conductor. Statement 1002

Warning Before performing any of the following procedures, ensure that power is removed from the DC circuit. Statement 1003

Warning A readily accessible two-poled disconnect device must be incorporated in the fixed wiring. Statement 1022

Warning Use copper conductors only. Statement 1025

Warning This product requires short-circuit (overcurrent) protection, to be provided as part of the building installation. Install only in accordance with national and local wiring regulations. Statement 1045

Warning When installing or replacing the unit, the ground connection must always be made first and disconnected last. Statement 1046

Warning Installation of the equipment must comply with local and national electrical codes. Statement 1074

Warning Hazardous voltage or energy may be present on DC power terminals. Always replace cover when terminals are not in service. Be sure uninsulated conductors are not accessible when cover is in place. Statement 1075

Procedure

Step 1 Install the DC power supply in the chassis, making note of the bay number, so you are sure to connect the wiring to the appropriate terminals on the DC PDU at the chassis rear.

Step 2 Verify that power is off to the DC circuit or circuits on the power supply that you are installing.

Step 3 Ensure that all site power and grounding requirements have been met.

Step 4 Remove the plastic cover from the DC terminals by squeezing the flanges at the top and bottom of the cover.

Step 5 Connect the ground wires to the power supply terminal block, shown as a green wire below. Only one ground connection is required, though there may be up to four DC connections.

Step 6 Connect the DC-input wires to the power supply terminal block. The proper wiring sequence is positive to positive (red wire), and negative to negative (black wire). The figure below shows a connection to terminal 1.

Note

The positive and negative wires can be installed pointing either to the right or to the left as long as the terminal cover is used. The figure below shows them pointed to the right. Panduit LCD4-14A-L connectors may be used for the supply and return wires, and Panduit LCD4-14AF-L or equivalent connectors may be used for the 90-degree ground lug wire. Both connections have double lugs with .25 inch holes measuring .625 inches from center to center.

Figure 15: Connecting DC Power to the Chassis (shows DC PDU only, Chassis is Omitted)

Step 7 Replace the terminal cover as shown. This cover should always be in place when power is applied to the terminals.

Step 8 Connect the other end of the power wires to a DC-power input source.

Step 9 Set the DC disconnect switch in the circuit to ON.

Caution In a system with multiple power supplies, connect each power supply to a separate DC power source. In the event of a power source failure, if the second source is still available, it can maintain system operation.

Step 10 Verify power supply operation by checking the power supply's front-panel LEDs. You should see the following:

- The LED labeled INPUT OK is green.
- The LED labeled OUTPUT FAIL is not lit.

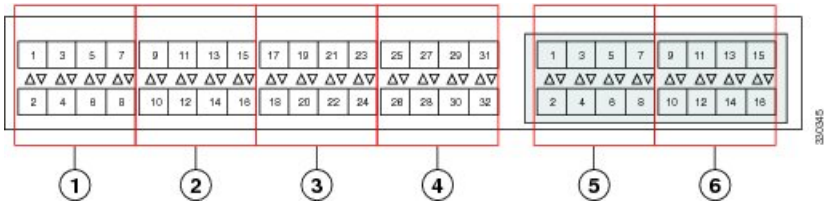
Step 11 Check the power supply and system status from the UCS console by entering the show system command or the show power command, do using the GUI. For more information on these commands, refer to the command reference for your software.

Cabling Considerations for Fabric Port Channels

When you configure the links between the Cisco UCS 2200 Series FEX and a Cisco UCS 6200 series fabric interconnect in fabric port channel mode, the available virtual interface namespace (VIF) on the adapter varies depending on where the FEX uplinks are connected to the fabric interconnect ports.

Inside the 6248 fabric interconnect there are six sets of eight contiguous ports, with each set of ports managed by a single chip. When all uplinks from an FEX are connected to a set of ports managed by a single chip, Cisco UCS Manager maximizes the number of VIFs used in service profiles deployed on the blades in the chassis. If uplink connections from an IOM are distributed across ports managed by separate chips, the VIF count is decreased.

Figure 16: Port Groups for Fabric Port Channels



Caution Adding a second link to a fabric-port-channel port group is disruptive and will automatically increase the available amount of VIF namespace from 63 to 118. Adding further links is not disruptive and the VIF namespace stays at 118.

Caution Linking a chassis to two fabric-port-channel port groups does not affect the VIF namespace unless it is manually acknowledged. The VIF namespace is then automatically set to the smaller size fabric port-channel port group usage (either 63 or 118 VIFs) of the two groups.

For high availability cluster-mode applications, we strongly recommend symmetric cabling configurations. If the cabling is asymmetric, the maximum number of VIFs available is the smaller of the two cabling configurations.

For more information on the maximum number of VIFs for your Cisco UCS environment, see the Configuration Limits document for your hardware and software configuration.

Proper FEX and Fabric Interconnect Port Connectivity

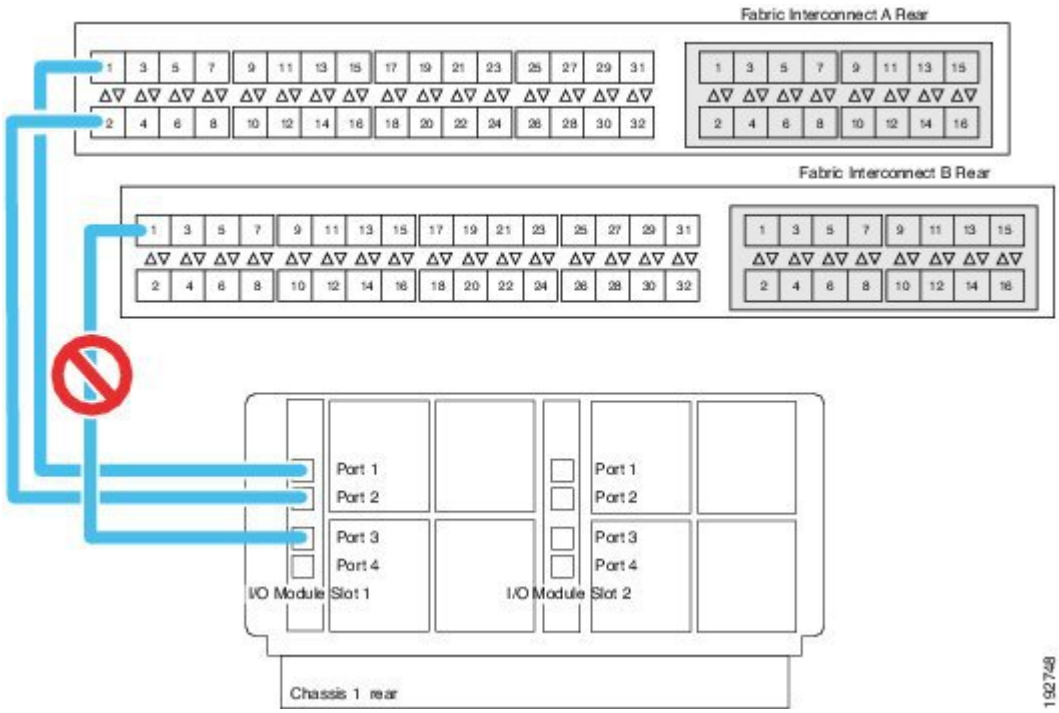
Note The following illustrations are for example only; you do not need to skip available ports to provide future expansion room. See the UCS Manager configuration guide for FI port configuration considerations and limitations.

Observe the following guidelines:

- When you connect the server chassis to the fabric interconnect, do not connect the FEXes to the fabric interconnect's expansion modules. While similar in appearance to the other ports on the fabric interconnect, the expansion modules are never used for direct chassis connections. They are typically used for SAN connectivity or network uplink.
- All ports of a FEX must be connected to only one fabric interconnect. You must connect each fabric interconnect to the chassis through its own FEX.
- If you need to connect to a second fabric interconnect, do the following:
  - The chassis must have a second FEX installed.
  - All ports of the second FEX must be connected to the second fabric interconnect only because the FEX is a fabric extender, which can only be connected to a single switch, or in this case, a fabric interconnect.

    The following figure shows an invalid connection from a FEX to two separate fabric interconnects.

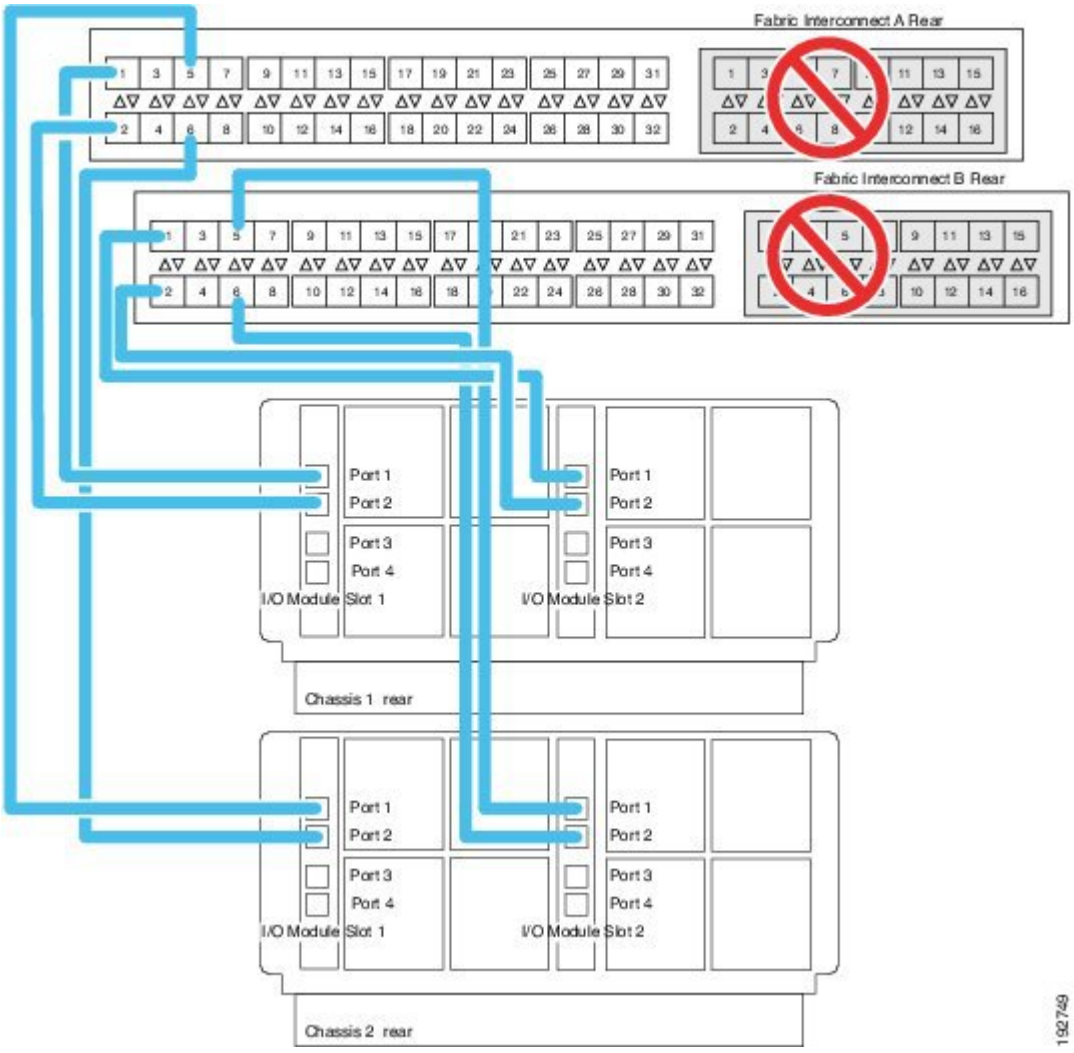
Figure 17: Invalid Connection for the Server Chassis and two Cisco UCS 6120XP Fabric Interconnects



- Both fabric interconnects should be wired identically: if port 1 on FEX 1 for a chassis goes to FI-A port 5, then port 1 on FEX 2 goes to FI-B port 5.

  The following figure shows valid connections from FEXes in two chassis to two separate fabric interconnects. When you connect the server chassis to the fabric interconnect do not connect the FEXes to the fabric interconnect's expansion modules. While similar in appearance to the other ports on the fabric interconnect, the expansion modules are never used for direct chassis connections, they are used for uplink or SAN connections.

Figure 18: Proper Connection for the Server Chassis and two Cisco UCS 6120XP Fabric Interconnects



Removing the Chassis from a Rack

Procedure

Step 1 Use Cisco UCS Manager to do the following:

a) Shut down the OS on all blade servers in the chassis.

b) Disable the Smart Call Home feature.

c) Decommission the chassis.

For details, see the *Configuration Guide* for the version of Cisco UCS Manager that you are using. The configuration guides are available at the following URL: http://www.cisco.com/en/US/products/ps10281/products_installation_and_configuration_guides_list.html

Step 2 Disconnect the power cords and networking cables from the chassis.
Step 3 Remove all modules and blades from the chassis to lighten its weight.
Step 4 Remove the screws holding the front rack-mount flange to the rack.
Step 5 With two people holding the chassis, make sure that its weight is fully supported.
Step 6 Gently slide the chassis off the rails, and out of the rack.
Step 7 Replace the modules and blades in the server chassis.

Repacking the Chassis

If you need to repack the chassis, remove it from the rack by reversing the steps in the Removing the Chassis from a Rack, on page 26 section, and then pack it for shipment. If possible, use the original packing materials and container to pack the chassis. Replacement packaging can be ordered using the following PIDS:

- If you have only half-width blades, use UCSB-5108-PKG-HW=.
- If you have full-width blades or a mix of full-width and half-width blades, use UCSB-PKG-FW=.

If you are returning the chassis to Cisco, contact your Cisco customer service representative to arrange for return shipment to Cisco.

SFP+ Transceivers

Each FEX within the chassis supports Small Form-Factor Pluggable (SFP+) copper or optical transceivers. Each transceiver runs at 10 Gb.

SFP+ Twinax Copper Transceivers

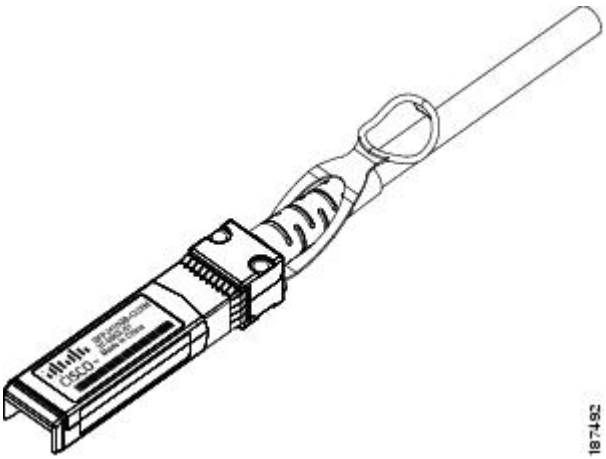
The FEX also supports Twinax copper transceivers. The enhanced SFP+ 10-Gb Ethernet transceiver is a bidirectional device with a transmitter and receiver in the same physical package. It has a 20-pin connector on the electrical interface.

Table 3: SFP+ 10 Gb Ethernet Transceiver

Model	Description
SFP-H10GB-CU1M	10-Gb Ethernet—copper SFP+ (1 m, 3.28 ft.)
SFP-H10GB-CU3M	10-Gb Ethernet—copper SFP+ (3 m, 9.84 ft.)
SFP-H10GB-CU5M	10-Gb Ethernet—copper SFP+ (5 m, 16.4 ft.)
SFP-H10GB-ACU7M	10-Gb Ethernet—copper SFP+ (7 m, 22.9 ft.)
SFP-H10GB-ACU10M	10-Gb Ethernet—copper SFP+ (10 m, 32.8 ft.)

The figure below shows the SFP-H10GB-CU5M transceiver. The rubber loop is used for removing the SFP+ from its port on the I/O module.

Figure 19: SFP+ 10 Gb Twinax Copper Transceiver



Optical SFP+ Transceivers

If distances greater than 10 meters (33 feet) must be spanned, the FEX also supports the substitution of the copper SFP+ by optical SFP+ transceivers. The SFP+ 10-Gb Ethernet optical transceiver is a bidirectional device with a transmitter and receiver in the same physical package. It has a duplex LC connector on the optical interface.

Model	Description
SFP-10G-SR	Short–range optical SFP+ (up to 300 m/ 984 feet)
SFP-10G-LR	Long–range optical SFP+ (up to 10 km/6.2 miles)
FET-10G	Cisco 10G Fabric Extender Transceiver, LC duplex connector

[1] While the SFP-10G-LR is supported by both the fabric interconnect and I/O module, the maximum distance will introduce latency issues that will affect overall performance.

Documentation for SFP+ 10-Gb Ethernet optical transceivers is at

http://www.cisco.com/en/US/docs/interfaces_modules/transceiver_modules/installation/note/78_15160.html

SFP and SFP+ Transceivers for the UCS 6324 Fabric Interconnect

Each UCS 6324 Fabric Interconnect supports up to four SFP optical or copper transceivers.

Table 4: SFP+ Transceivers

Model	Description
SFP-10G-SR	Short–range optical SFP+ (up to 300 m/ 984 feet)
SFP-10G-SR -X	Short–range optical SFP+ (up to 300 m/ 984 feet), extended temperature

Model	Description
FET-10G	Cisco 10G Fabric Extender Transceiver, LC duplex connector

Table 5: SFP Optical Transceivers

Model	Description
GLC-T	1-Gb Ethernet copper SFP module
GLC-SX-MM	1-Gb Ethernet short–range (up to 550 m / 1804.46 feet) SFP module
GLC-LH-SM	1-Gb Ethernet long–range (10 km / 32808.4 feet) SFP module
SFP-GE-T	1-Gb Ethernet extended temperature range module

The UCS 6324 Fabric Interconnect also supports Twinax copper transceivers. The enhanced SFP+ 10-Gb Ethernet transceiver is a bidirectional device with a transmitter and receiver in the same physical package. It has a 20-pin connector on the electrical interface.

Table 6: SFP+ 10 Gb Ethernet Transceivers

Model	Description
SFP-H10GB-CU1M	10-Gb Ethernet—copper SFP+ (1 m, 3.28 ft.)
SFP-H10GB-CU3M	10-Gb Ethernet—copper SFP+ (3 m, 9.84 ft.)
SFP-H10GB-CU5M	10-Gb Ethernet—copper SFP+ (5 m, 16.4 ft.)
SFP-H10GB-ACU7M	10-Gb Ethernet—copper SFP+ (7 m, 22.9 ft.)
SFP-H10GB-ACU10M	10-Gb Ethernet—copper SFP+ (10 m, 32.8 ft.)

Twinax Copper Cables for the UCS 6324 Fabric Interconnect

Twinax copper cables are available in various lengths for the UCS 6324 Fabric Interconnect. The 7 meter and 10 meter cables are active, which means that they contain active components with the SFP+ connector housing to improve signal quality. The ends of these cables have connectors that can plug directly into SFP receptacles.

Table 7: Twinax Copper Cables

Model	Description
SFP-H10GB-CU1M	10-Gb Ethernet—copper SFP+ (1 m, 3.28 ft.)
SFP-H10GB-CU3M	10-Gb Ethernet—copper SFP+ (3 m, 9.84 ft.)
SFP-H10GB-CU5M	10-Gb Ethernet—copper SFP+ (5 m, 16.4 ft.)

Model	Description
SFP-H10GB-ACU7M	10-Gb Ethernet—copper SFP+ (7 m, 22.9 ft.)
SFP-H10GB-ACU10M	10-Gb Ethernet—copper SFP+ (10 m, 32.8 ft.)

QSFP+ Copper Optical Transceivers for the UCS 6324 Fabric Interconnect

Each UCS 6324 Fabric Interconnect supports up one copper/optical transceiver.

Table 8: QSFP+ Copper/Optical Transceivers

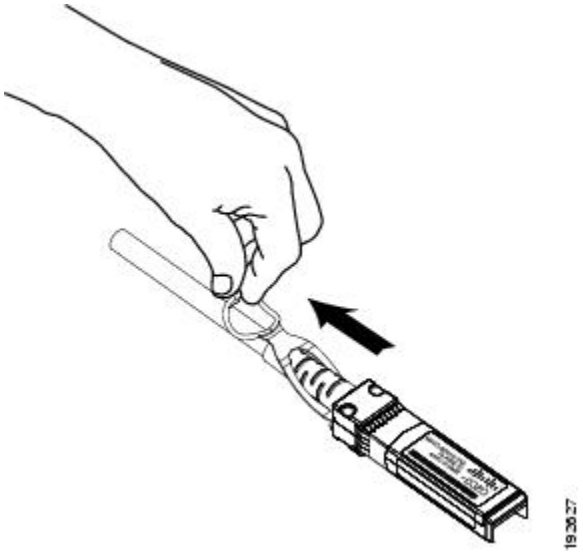
Model	Description
QSFP-4SFP10G-CU5M	40GBASE-CR4 QSFP+ to four 10GBASE-CU SFP+ direct attach breakout cable assembly, 5 meter passive
QSFP-4SFP10G-CU3M	40GBASE-CR4 QSFP+ to four 10GBASE-CU SFP+ direct attach breakout cable assembly, 3 meter passive
QSFP-4SFP10G-CU1M	40GBASE-CR4 QSFP+ to four 10GBASE-CU SFP+ direct attach breakout cable assembly, 1 meter passive
QSFP-4x10G-AC7M	40GBASE-CR4 QSFP+ to four 10GBASE-CU SFP+ direct attach breakout cable assembly, 7 meter active
QSFP-4x10G-AC10M	40GBASE-CR4 QSFP+ to four 10GBASE-CU SFP+ direct attach breakout cable assembly, 10 meter active

Replacing a Copper Twinax SFP+ Transceiver with an Optical SFP+ Transceiver

Procedure

Step 1 Remove the copper Twinax SFP+ from the FEX port by pulling gently on the rubber loop. The cable and SFP+ transceiver come out as a single unit, leaving the FEX port empty.

Figure 20: Removing a Twinax Copper SFP+ Transceiver



Step 2 Insert the optical SFP+ transceiver into the FEX port. Make sure that it clicks firmly into place.

Step 3 Plug the fiber-optic cable into the optical SFP+ transceiver.

Figure 21: Replacing a Copper SFP+ Transceiver with an Optical SFP+ Transceiver